



# AFCTN Test Report 94-060

AFCTB-ID  
94-009

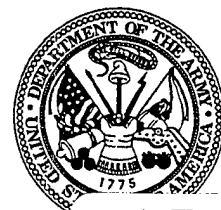


## Technical Publication Transfer

Using:



Sikorsky Aircraft's Data



For The Army Blackhawk Program  
(Contract #DAAJ09-92-C-0004, P00017)



19960822 046

MIL-M-28001A (SGML)  
MIL-D-28003 (CGM)

Quick Short Test Report

07 March 1994



Prepare For:  
Electronic Systems Center  
Det 2 HQ ESC/AV-2  
4027 Colonel Glenn Hwy, Suite 300  
Dayton, Ohio 45431-1672

[DMC QUALITY INSPECTED 3]

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**AFCTN Test Report**  
**94-060**

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**Quick Short Test Report**  
**07 March 1994**

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**Prepared By**  
Air Force CALS Test Bed  
Wright-Patterson AFB, OH 45433

**AFCTB Contact**  
Gary Lammers  
(513) 427-2295

**AFCTN Contact**  
Mel Lammers  
(513) 427-2295

**DTIC QUALITY INSPECTED 3**

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# **Air Force CALS Test Bed**

## ***Notification of Test Results***

**07 March 1994**

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

### **Sikorsky Aircraft**

Identified as follows:

Title:	<b>Technical Publication Transfer</b>
Program:	<b>The Army Blackhawk Program</b>
Program Office:	
Contract No.:	<b>DAAJ09-92-C-0004,P00017</b>
QSTR No.:	<b>AFCTB-ID 94-009</b>

Received on the following media:     **9-Track Tape**

The results of the AFCTB Quick Short Test Report evaluation are as follows:

MIL-STD-1840A Media Format:	<b>Pass</b>
MIL-D-28000A IGES:	<b>N/A</b>
MIL-M-28001A SGML:	<b>Fail</b>
MIL-R-28002A Raster:	<b>N/A</b>
MIL-D-28003 CGM:	<b>Fail</b>

Formal results with associated disclaimer are documented and available from the AFCTB.

**Air Force CALS Test Bed  
HQ ESC/AV-2P  
4027 Colonel Glenn Highway, Suite 300  
Dayton, OH 45431-1672  
Phone: 513-257-3085     FAX: 513-257-5881**

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## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## 1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Sikorsky Aircraft's interpretation and use of the CALS standards in transferring technical publication data. Sikorsky used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

## 2. Test Parameters

Test Plan: AFCTB 94-009

Date of  
Evaluation: 07 March 1994

Evaluator: George Elwood  
Air Force CALS Test Bed  
DET 2 HQ ESC/AV-2P  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

Data  
Originator: Frank Krasnicki  
Sikorsky Aircraft  
6900 Main Street  
M/S B205A  
P. O. Box 9729  
Stratford CT 06497-9129  
(203) 384-7068

Data  
Description: Technical Manual Test  
1 Document Declaration file  
1 Document Type Definition (DTD)  
1 Text/Standard Generalized Markup Language  
(SGML) file  
41 Computer Graphics Metafile (CGM) files

Data  
Source System: 1840

### HARDWARE

DEC 5000 Ultrix RISC Workstations

### SOFTWARE

ArborText Adept 1840A Tape Utility and  
Graphics Conversion Filters

Text/SGML

### HARDWARE

DEC 5000 Ultrix RISC Workstations  
DEC 5500 Server

### SOFTWARE

ArborText Adept SGML Editor 5.0  
Parlance Document Manager 1.3  
Interbase Relational Database 3.2  
Xyvision Parlance Publisher

CGM

HARDWARE

Auto-trol Apollo DN3550 Graphics Workstations  
Auto-trol Apollo DSP 4500 servers

SOFTWARE

Auto-trol Tech Illustrator Plus 8.2.6  
Auto-trol S5K/IGES Processor 6.0  
Auto-trol S5K/CGM Converter 1.4  
Auto-trol S5K/DXF AutoCad Converter 3.0

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN Tapetool v1.2.10 UNIX  
XSoft CAPS/CALS v40.4

MIL-M-28001 (SGML)

SUN SparcStation 2

ArborText ADEPT v4.2.1

PC 486/50

Exoterica XGMLNormalizer v1.2e3.2  
Exoterica Validator v2.0 ex1  
McAfee & McAdam Sema Mark-it v2.3  
Public Domain sgmls

MIL-D-28003 (CGM)

HP 735

SGI Indigo 2

IGES Data Analysis (IDA) CALSView

SUN SparcStation 2

Carberry CADLeaf Plus v3.1  
Island Graphics IslandDraw v3.0  
Island Graphics IslandDraw v4.0

PC 486/50

Advanced Technology Center  
(ATC) MetaCheck R 2.10  
Software Publishing Corporation  
(SPC) Harvard Graphics v3.05  
Inset Systems HiJaak Pro  
Lotus Freelance v2.01  
Micrografx Designer v4.0  
Corel Ventura Publisher

Standards

Tested:

MIL-STD-1840A  
MIL-M-28001A  
MIL-D-28003

### **3. 1840A Analysis**

#### **3.1 External Packaging**

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

External packaging meets the requirements defined in CALS MIL-STD-1840A.

#### **3.2 Transmission Envelope**

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

The tape was run through the AFCTN *Tapetool* v1.2.10 utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using the XSoft *CAPS read1840A* utility without a reported error.

The tape format meets the requirements defined in CALS MIL-STD-1840A and ANSI 3.27.

### 3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file and data file headers. The structure of these files meet the requirements defined in CALS MIL-STD-1840A.

## 4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

## 5. SGML Analysis

The tape submitted by Sikorsky contained DTD and text files. The AFCTB has several parser available for evaluating submitted DTD and text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or text files required by each system are not documented in the report.

The text and DTD files were tested using the Exoterica *XGMLNormalizer* parser. The provided DTD parsed without any reported errors or warnings. Using the provided DTD, the text file had many reported errors. The errors were similar, in that they all pointed to missing external references. The line shown below was added to correct this condition. A check of the DTD showed that the external reference entities were not called. These statements were added to the DTD, and the text file parsed without any reported errors or warnings.

```
%ISOnum; %ISOpub;
```

The text and DTD files were evaluated using another parser, available within the AFCTB. The corrected DTD was used during the parsing operation. This parser reported several

---

graphic entities were reused, along with other errors. Because of the errors the DTD did not compile and, therefore, the text file could not be evaluated. The parser log is included in Appendix B, Section 10.1 to this report.

The text and DTD files were evaluated using the Exoterica *Validator ex1* parser. This operation generated multiple graphic redefinition warnings as well as other type warnings. The parser log is included in Appendix B, Section 10.2 to this report.

The text and corrected DTD files were evaluated using McAfee & McAdam's *Sema Mark-it* parser. This program reported no errors.

The text and corrected DTD files were evaluated using the Public Domain *sgmls* parser. Only one error, which is shown below, was reported. The parser log is included in Appendix B, Section 10.3 to this report.

```
<!ELEMENT (illlist | tablist) - - EMPTY >
```

The text and corrected DTD files were imported into Arbor-Text's *Adept* software. The DTD parsed without error.

Because of the error in the DTD, the provided files do not meet the CALS MIL-M-28001A specification.

## 6. Raster Analysis

No Raster files were included in this evaluation.

## 7. CGM Analysis

The tape contained 41 CGM files. The files were evaluated using ATC's *MetaCheck* with CALS options. The utility reported that all files failed to meet the specification defined in MIL-D-28003. The reported error is related to the use of non-valid fonts.

===== CALS CGM Profile (MIL-D-28003) Report =====

Error 6509: Element Class/ID: 1/13    Offset: 84 octets Element No. 9  
Invalid list parameters; each of the Font Names in the FONT LIST element must be among the Font Names allowed by the Profile.

All CGM files were evaluated using the beta AFCTN *validcgm* utility. This utility also reported errors in the fonts. MIL-D-28003, para. 3.2.5 permits 16 fonts in the Hershey group.

```
MILSPEC 28003 error: illegal font name  HELVETICA
MILSPEC 28003 error: illegal font name  HELEVITICA_BOLD
MILSPEC 28003 error: illegal font name  FRANKLINGOTHIC-HEAVY
(9, 84)           (1, 13, 48)   Font List
                        "HELVETICA"
                        "HELEVITICA_BOLD"
                        "FRANKLINGOTHIC-HEAVY"
```

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

Because of the number of submitted files, a sample was selected for the detailed evaluation discussed below. Four sets of hard copies (D001C004, C009, C018, and C031) are provided along with the parser logs for two files (D001C004 and D001C009). An additional four files, D001C012, C022,



C028, and C045, were also reviewed in detail. These files are not discussed but received the same level of review as those listed above.

All files were read into Carberry's *CADLeaf* software and displayed without a reported problem. No errors were noted in file C004. File C009 had text overrunning graphics. The text overflow problem was also noted in file C018.

According to R.Bryan DiAntonio of Carberry, "...with the 'Proportional Font' option turned on, text overrunning was fixed."

The sample files were read into IDA's *CALSVIEW* software and displayed without a reported problem. In checking the displayed and hard copy images, some errors were noted. The two lines of text in file C004 and C009 appear to touch. The text overflows the defined area in file C018. In file C031, the background color of the circles located within the square shapes was black, making the numbers located within the circles unreadable.

The selected files were viewed and printed using another software available within the AFCTB. No errors were reported during the import process. All files displayed a set of lines from one point to various entities. The text overflow problem in file C018 was noted.

The selected files were imported into the Micrografx *Designer* with all files reporting four errors. The sample files displayed entity errors. Lines, arcs, and circles were missing or disjointed. However, the text overflow problem, noted above in file C018, was not present.

According to Michael Harrison of Micrografx, "Micrografx is aware of the problems associated with reading these files and is working on a solution to be implemented in a future release of our product."

The sample files were imported into Lotus' *Freelance* and displayed without a reported error. When displayed, the image had to be reduced in size to fit the defined page. No problems were noted in file C004. File C009 had some text run together. File C018 had text overflow along with overwriting of graphics entities. In file C031, the background color of the circles located within the square shapes was

---

black, making the numbers located within the circles unreadable.

The sample files were imported into SPC's *Harvard Graphics* v3.05 without a reported error. When displayed and printed entity errors and misplaced arcs were noted. The text overflow problem, in file C018, was also present. In file C031, the background color of the circles located within the square shapes was black, making the numbers located within the circles unreadable.

The sample files were read into Inset Systems' *HiJaak Pro* without a reported error. All of the graphics images appeared to be complete. Some overlap of leader lines and text was noted. The text overflow problem was present in file C018. In file C031, the background color of the circles located within the square shapes was black, making the numbers located within the circles unreadable.

The sample files were imported directly into Island Graphics' *IslandDraw* v4.0 without a reported error. When first displayed on the screen, no text was present. By re-selecting the text as black, it was displayed. Entity errors, misplaced arcs, and disjointed line segments were noted in files C004, C009, and C018. However, the text in file C018 was correctly placed within the text block. In file C031, the background color of the circles located within the square shapes was black, making the numbers located within the circles unreadable.

The sample files were imported into Corel's *Ventura Publisher* without a reported error. When displayed and printed, entity errors, misplaced arcs, and disjointed lines were noted in all files. The text in file C018 was placed correctly. The square and circles in file C031 were also displayed correctly.

The CGM files were reported in error by both ATC's *MetaCheck* and AFCTN's *validcgm*. The problem relates to use of nonapproved fonts. The files were imported into several applications in the AFCTB, and they all reported problems with the files. The most noted error was in text overflow in file C018. Some applications had problems with incomplete entity structure. Because of the font problem, the files do not meet the CALS MIL-D-28003 specification.

## 8. Conclusions and Recommendations

The physical structure, Document Declaration file, and data file headers of the tape from Sikorsky Aircraft was correct. This portion of the tape meets the CALS MIL-STD-1840A requirements.

The DTD contained errors which had to be corrected before any additional evaluation could be completed. The SGML files do not meet the CALS MIL-M-28001A specification, due to the errors in the DTD.

The CGM files do not meet the CALS MIL-D-28003 specification, due to the non-supported text fonts.

The tape does not meet the CALS MIL-STD-1840A requirements, because of errors in the DTD and CGM files.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Mar 4 13:09:46 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set048

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001C004	CGM	F/00080	00800/000045	Extracted
D001C005	CGM	F/00080	00800/000011	Extracted
D001C006	CGM	F/00080	00800/000005	Extracted

<<<< PART OF LOG REMOVED HERE >>>>

D001C044	CGM	F/00080	00800/000030	Extracted
D001C045	CGM	F/00080	00800/000025	Extracted
D001G002	DTD	D/00260	02048/000017	Extracted
D001H003	Output Specification	D/00260	02048/000002	Extracted
D001T001	Text	D/00260	02048/000312	Extracted

Catalog Process terminated normally.

---

## 9.2 Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Mar 4 13:08:34 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01

KRASNICK

4

Label Identifier: VOL1  
Volume Identifier: CALS01  
Volume Accessibility:  
Owner Identifier: KRASNICK  
Label Standard Version: 4

HDR1D001

00010001000100 94060 99364 000000UNIX4.2-PRODS

Label Identifier: HDR1  
File Identifier: D001  
File Set Identifier:  
File Section Number: 0001  
File Sequence Number: 0001  
Generation Number: 0001  
Generation Version Number: 00  
Creation Date: 94060  
Expiration Date: 99364  
File Accessibility:  
Block Count: 000000  
Implementation Identifier: UNIX4.2-PRODS

HDR2D0204800260

00

Label Identifier: HDR2  
Recording Format: D  
Block Length: 02048  
Record Length: 00260  
Offset Length: 00

AFCTN Test Report  
94-060

AFCTB Test Report  
94-009

---

\*\*\*\*\* Tape Mark \*\*\*\*\*

<<<<< PART OF LOG REMOVED HERE >>>>>

\*\*\*\*\* Tape Mark \*\*\*\*\*

##### End of Volume CALS01 #####

##### End Of Tape File Set #####

Deallocating /dev/rmt0...

Tape Import Process terminated normally.

## 9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri Mar 4 13:09:47 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set048

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: Sikorsky Aircraft 6900 Main St. Stratford,CT 06601-1381

srcdocid: DMWR 1-1650-384

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19940302

dstsys: U.S. Army ATCOM

dstdocid: DMWR 1-1650-384

dstrelid: NONE

dtetrn: 19940302

dlvacc: NONE

filcnt: T1,G1,H1,C42

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Technical Order

docttl: Tail Rotor Servo Assembly

Found file: D001C004

Extracting CGM Header Records...

Evaluating CGM Header Records...

srcdocid: DMWR 1-1650-384

dstdocid: DMWR 1-1650-384

txtfilid: W

figid: 4-6

srcgph: aa3149

doccls: UNCLASSIFIED

notes: NONE

Saving CGM Header File: D001C004\_HDR

Saving CGM Data File: D001C004\_CGM

Found file: D001C005  
Extracting CGM Header Records...  
Evaluating CGM Header Records...

srcdocid: DMWR 1-1650-384  
dstdocid: DMWR 1-1650-384  
txtfilid: W  
figid: 3-5  
srcgph: aa3126  
doccls: UNCLASSIFIED  
notes: NONE

Saving CGM Header File: D001C005\_HDR  
Saving CGM Data File: D001C005\_CGM

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Found file: D001C045  
Extracting CGM Header Records...  
Evaluating CGM Header Records...

srcdocid: DMWR 1-1650-384  
dstdocid: DMWR 1-1650-384  
txtfilid: W  
figid: 4-5  
srcgph: aa3148  
doccls: UNCLASSIFIED  
notes: NONE

Saving CGM Header File: D001C045\_HDR  
Saving CGM Data File: D001C045\_CGM

Found file: D001G002  
Extracting DTD Header Records...  
Evaluating DTD Header Records...

srcdocid: DMWR 1-1650-384  
dstdocid: DMWR 1-1650-384  
notes: DTD

Saving DTD Header File: D001G002\_HDR  
Saving DTD Data File: D001G002\_DTD

Found file: D001H003  
Extracting Output Specification Header Records...  
Evaluating Output Specification Header Records...

srcdocid: DMWR 1-1650-384

---



dstdocid: DMWR 1-1650-384  
notes: FOSI

Saving Output Specification Header File: D001H003\_HDR  
Saving Output Specification Data File: D001H003\_OS

Found file: D001T001  
Extracting Text Header Records...  
Evaluating Text Header Records...

srcdocid: DMWR 1-1650-384  
dstdocid: DMWR 1-1650-384  
txtfilid: W  
doccls: UNCLASSIFIED  
notes: SGML

Saving Text Header File: D001T001\_HDR  
Saving Text Data File: D001T001\_TXT

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

## 9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001' ---  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/aa3149.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/aa3126.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/aa3127.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/aa3128.C.cgm'.
```

<<<<< PART OF LOG REMOVED HERE >>>>>

```
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/aa3147.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/aa3148.C.cgm'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/DMWR11650384.G.dtd'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/DMWR11650384.H.out'.  
/cals/caps/Bin/read1840A: writing data file '9409/DMWR1-1650-384/W.T.sgm'.  
-- declaration file indicates 1 files of type T  
-- declaration file indicates 1 files of type G  
-- declaration file indicates 1 files of type H  
-- declaration file indicates 0 files of type Q  
-- declaration file indicates 0 files of type R  
-- declaration file indicates 42 files of type C  
-- declaration file indicates 0 files of type X  
-- declaration file indicates 0 files of type P  
-- declaration file indicates 0 files of type Z
```

## 10. Appendix B - Detailed SGML Analysis

### 10.1 Parser Log

SGML Document Type Definition Parser  
An SGML System Conforming to  
International Standard ISO 8879  
Standard Generalized Markup Language

Log file: '9409.LOG'  
SDO File: 'ctnddecl.sdo'  
Namecase General is yes.  
Namecase Entity is no.  
Parsing DTD file: '9409.dtd'  
Parsing DOCTYPE DMWR

DTD0143: Attempt to declare general entity name 'aa3150'  
more than once denied.  
In declaration: '<!ENTITY'.  
In declaration: '<!['.  
In declaration: '<!DOCTYPE'.  
in entity 'math'  
in line 106 in file '9409.dtd'  
          <<<<< PART OF LOG FILE REMOVED HERE >>>>>  
DTD0137: Incorrect token 'TEMP'. Parser Ignoring Input Up To Next MDO.  
In declaration: '<!['.  
In declaration: '<!['.  
In declaration: '<!DOCTYPE'.  
in entity 'text'  
in line 652 in file '9409.dtd'  
DTD0221: An unknown keyword was used in a marked section declaration. Only  
TEMP, IGNORE, and INCLUDE are allowed in a Document Type Definition.  
CDATA and RCDATA are allowed in a document instance.  
In declaration: '<!['.  
In declaration: '<!['.  
In declaration: '<!DOCTYPE'.  
in entity 'text'  
in line 656 in file '9409.dtd'  
DTD0095: Start tag for element 'ILLLIST' cannot be omitted if the  
element had declared content (CDATA, RCDATA, EMPTY).  
DTD0095: Start tag for element 'TABLIST' cannot be omitted if the  
element had declared content (CDATA, RCDATA, EMPTY).  
DTD0096: The generic ID DOCTYPE has not been used in any content  
model, inclusion, or as a doctype element.  
DTD0096: The generic ID PRTITLE has not been used in any content  
model, inclusion, or as a doctype element.

---

DTD0096: The generic ID HOWTOUSE has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID BODY has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID SECTINDEX has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID PERSONNEL has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID MATERIALINDEX has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID REFINDEX has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID EQUIPCON has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID ENVIRONMENT has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID APPLICABIL has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID TOOLS has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID SPECIALINST has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID GENSAFINST has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID PARTNAME has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID APPMAC has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID APPINVENT has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID EXPENDINTRO has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID SUBFIG has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID PARAINDEX has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID SECT has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID INSPECTOR has not been used in any content model, inclusion, or as a doctype element.

DTD0096: The generic ID DATE has not been used in any content model, inclusion, or as a doctype element.

DTD does not conform to ISO 8879 standard due to these errors:

Syntax error count: 1

Uncorrectable syntax error count: 1

.DTO file not created due to parsing errors.

Program status code: 5.

---

---

## 10.2 Exoterica validator exl Parser

```
<!-- **Warning** in "9409.sgm", line 179:
  A general entity name has been declared more than once.
  The entity is "aa3150".
  <!ENTITY aa3150 SYSTEM "/usr/homedirs/admin/s18984/aa3150.cgm" NDATA cgm  >
      ^^^^^^

-->

<<<<< PART OF REMOVED HERE >>>>>

<!-- **Warning** in "9409.sgm", line 337:
  An EMPTY element must have a start tag and must not have an end tag.
  Therefore, it is inappropriate to specify an omissible start tag or an
  inomissible end tag in its declaration.
  The elements are "ILLLIST" and "TABLIST".
  <!ELEMENT (illlist | tablist) - - EMPTY >
      ^^^^^^

-->

<!-- **Warning** in "9409.sgm", line 651:
  An element with mixed content should permit data characters ("#PCDATA") in
  all parts of its content model.
  The element being declared is "PARA".
  <!ELEMENT para - o (label? , (%paracon;))    +(tgroup)  >
                                     /\

-->

<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "APPINVENT".

-->

<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "APPLICABIL".

-->

<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "APPMAC".

-->

<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "AVIM".

-->

<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
```

---

```
    appear in any accessible content model or it is completely excluded.
    The element is "AVUM".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "BODY".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "CABINTAB".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "COCKPITAB".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "COMPASSY".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "DATE".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "DEPOT".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "DOCTYPE".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "ENVIRONMENT".
-->
<!-- **Warning** in "9409.sgm", line 910:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "EQUIPCON".
-->
```

---

```
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "EXPENDINTRO".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "GENSAFINST".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "GPNO".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "HOWTOUSE".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "INSPECTOR".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MAC".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MACINTRO".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MACREMARKS".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MACTOOLS".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
```

```
The element is "MAINTCAT".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MAINTFUNC".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not   appear in
  accessible content model or it is completely excluded.
  The element is "MATERIALINDEX".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MOS".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "MOSTITLE".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "PARAINDEX".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "PARANO".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "PARTNAME".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "PERSONNEL".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "PERSONREQ".
-->
<!-- **Warning** in "9409.sgm", line 910:
```

---



An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "PRTITLE".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "PYLONTAB".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "REFCODE".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "REFINDEX".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "REMARKS".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "SECT".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "SECTINDEX".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "SERIES".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "SPECIALINST".

-->

<!-- \*\*Warning\*\* in "9409.sgm", line 910:  
An element is not allowed in the document instance because it does not appear in any accessible content model or it is completely excluded.  
The element is "SUBFIG".

---

```
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "SUBHOWTO".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "TAILTAB".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "TE".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "TOOLNO".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "TOOLS".
-->
<!-- **Warning** in "9409.sgm", line 910:
  An element is not allowed in the document instance because it does not
  appear in any accessible content model or it is completely excluded.
  The element is "TRANSTAB".
-->
```

### 10.3 Public Domain sgmls Log

sgmls: Warning at 9409.dtd, line 295 in declaration parameter 4:  
End-tag minimization should be "O" for EMPTY element

|          |               |
|----------|---------------|
| TOTALCAP | 102899/200000 |
| ENTCAP   | 27200/200000  |
| ENTCHCAP | 11573/200000  |
| ELEMCAP  | 6976/200000   |
| GRPCAP   | 37856/200000  |
| EXGRPCAP | 608/200000    |
| EXNMCAP  | 1344/200000   |
| ATTCAP   | 12640/200000  |
| ATTCHCAP | 203/200000    |
| AVGRPCAP | 4416/200000   |
| NOTCAP   | 32/200000     |
| NOTCHCAP | 51/200000     |

## 11. Appendix C - Detailed CGM Analysis

### 11.1 File D001C004

#### 11.1.1 Parser Log MetaCheck

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-93 CGM Technology Software  
Execution Date: 03/04/94 Time: 15:25:33

Metafile Examined : i:\94009\c004.cgm

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

===== Trace Report =====

Tracing not selected.

===== CGM Conformance Violation Report =====

No Errors Detected

===== CALS CGM Profile (MIL-D-28003) Report =====

Error 6509: Element Class/ID: 1/13 Offset: 84 octets Element No. 9  
Invalid list parameters; each of the Font Names in the FONT LIST element  
must be among the Font Names allowed by the Profile.

===== Conformance Summary Report =====

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-93 CGM Technology Software  
Execution Date: 03/04/94 Time: 15:25:39

Name of CGM under test: i:\94009\c004.cgm  
Encoding : Binary

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

BEGIN METAFILE string : >aa3149<  
METAFILE DESCRIPTION : >AUTO-TROL/REL-1.0 MIL-D-28003/BASIC-<

---

Picture 1 starts at octet offset 136: >aa3149<

Conformance Summary : This file conforms to the CGM specification.  
However, this file does not satisfy  
the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

1 Pictures Tested  
1444 Elements Tested  
35036 Octets Tested

|                                          |        |      |
|------------------------------------------|--------|------|
| 0 Illegal CGM Elements                   | 1000 - | 1999 |
| 0 Incorrect CGM Element Lengths          | 2000 - | 2999 |
| 0 CGM State Errors                       | 3000 - | 3499 |
| 0 Required CGM Elements Missing or Wrong | 4000 - | 4499 |
| 0 CGM Parameter Values Out of Range      | 6000 - | 6499 |
| 0 CGM Structure Errors                   | 7000 - | 7499 |
| 0 *** CGM Errors Found (total) ***       |        |      |

|                                            |        |      |
|--------------------------------------------|--------|------|
| 0 Profile State Errors                     | 3500 - | 3999 |
| 0 Illegal Profile Elements                 | 4500 - | 4999 |
| 1 Profile Parameter Values Out of Range    | 6500 - | 6999 |
| 0 Profile Data Limits Exceeded             | 8500 - | 8999 |
| 0 Other Profile Constraints Violated       | 9500 - | 9999 |
| 1 *** Profile Violations Found (total) *** |        |      |

1 distinct error(s) and warning(s) reported.

===== End of Conformance Report =====

## 11.1.2 validcgm Log

Analysis for file c004.cgm using table table and Font List

MILSPEC 28003 error: illegal font name HELVETICA

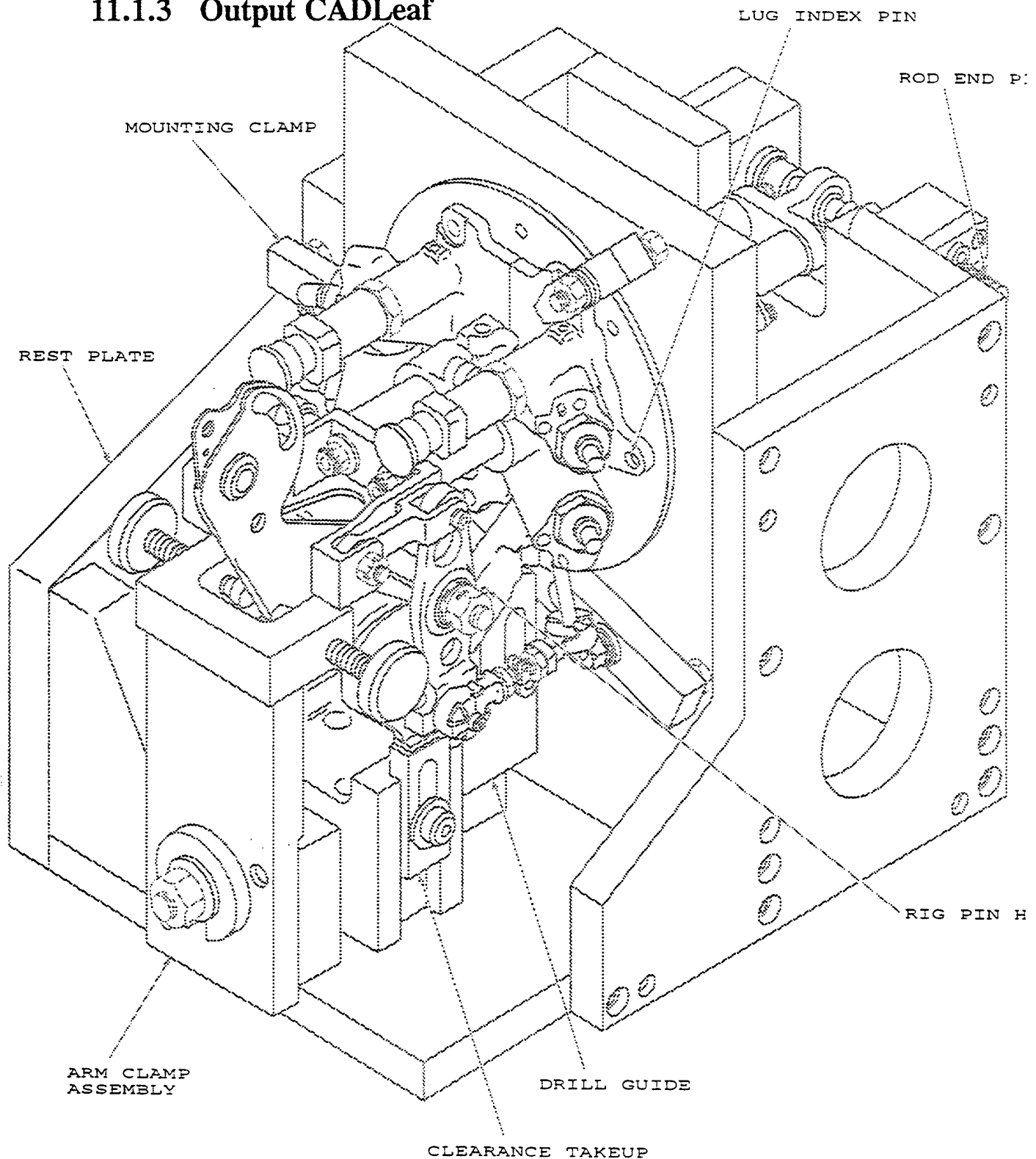
MILSPEC 28003 error: illegal font name HELEVITICA\_BOLD

MILSPEC 28003 error: illegal font name FRANKLINGOTHIC-HEAVY

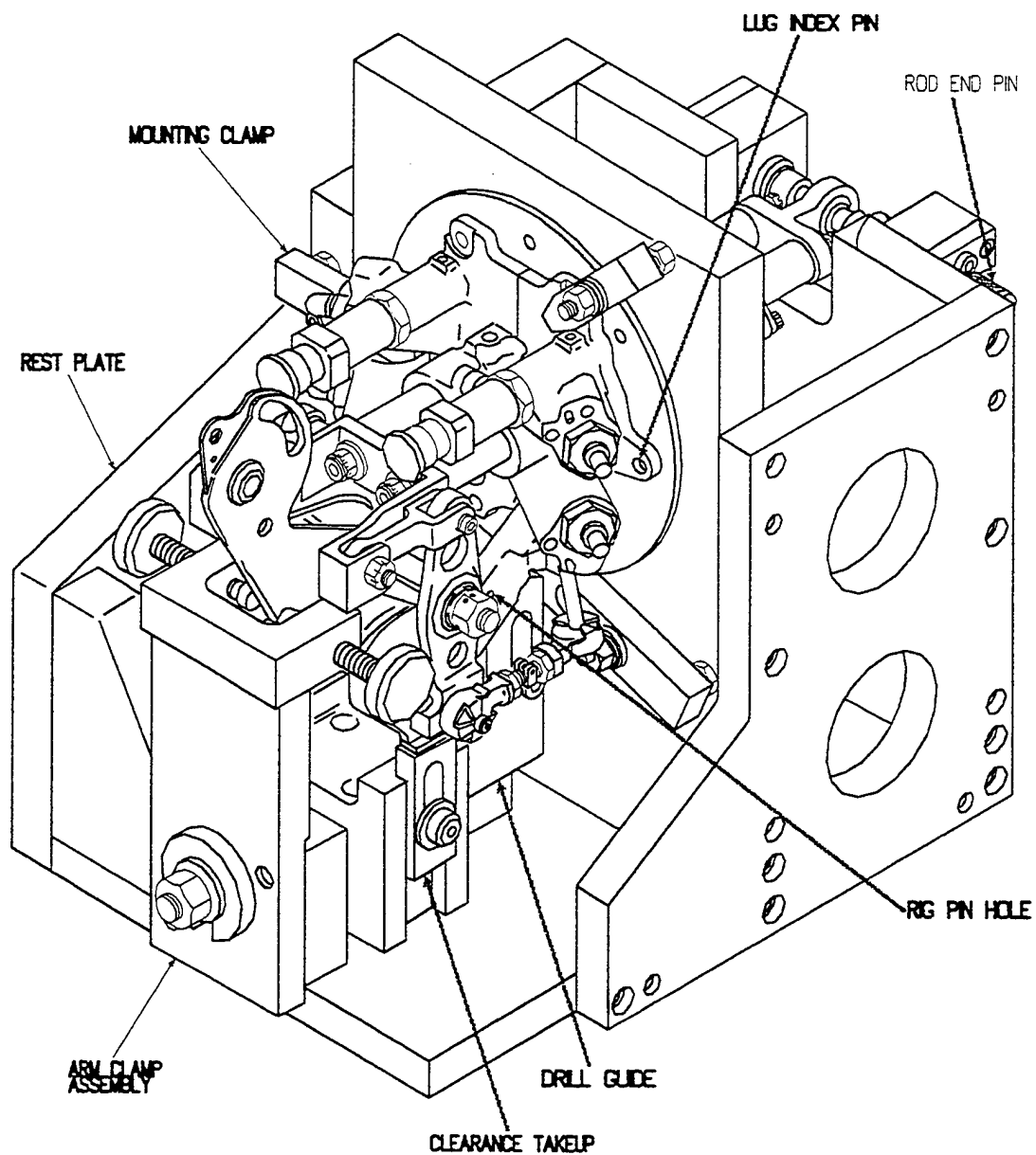
(9, 84) (1, 13, 48)

(0, 1) occurred 1 time  
(0, 2) occurred 1 time  
(0, 3) occurred 1 time  
(0, 4) occurred 1 time  
(0, 5) occurred 1 time  
(1, 1) occurred 1 time  
(1, 2) occurred 1 time  
(1, 5) occurred 1 time  
(1, 7) occurred 1 time  
(1, 8) occurred 1 time  
(1, 9) occurred 1 time  
(1, 11) occurred 1 time  
(1, 13) occurred 1 time  
(2, 1) occurred 1 time  
(2, 3) occurred 1 time  
(2, 4) occurred 1 time  
(2, 5) occurred 1 time  
(2, 6) occurred 1 time  
(2, 7) occurred 1 time  
(4, 1) occurred 1061 times  
(4, 4) occurred 11 times  
(4, 7) occurred 13 times  
(4, 15) occurred 20 times  
(4, 17) occurred 30 times  
(4, 18) occurred 57 times  
(5, 2) occurred 2 times  
(5, 3) occurred 61 times  
(5, 4) occurred 52 times  
(5, 10) occurred 3 times  
(5, 15) occurred 4 times  
(5, 16) occurred 1 time  
(5, 18) occurred 1 time  
(5, 22) occurred 4 times  
(5, 23) occurred 14 times  
(5, 28) occurred 3 times  
(5, 29) occurred 26 times  
(5, 30) occurred 27 times  
(5, 34) occurred 35 times

### 11.1.3 Output CADLeaf



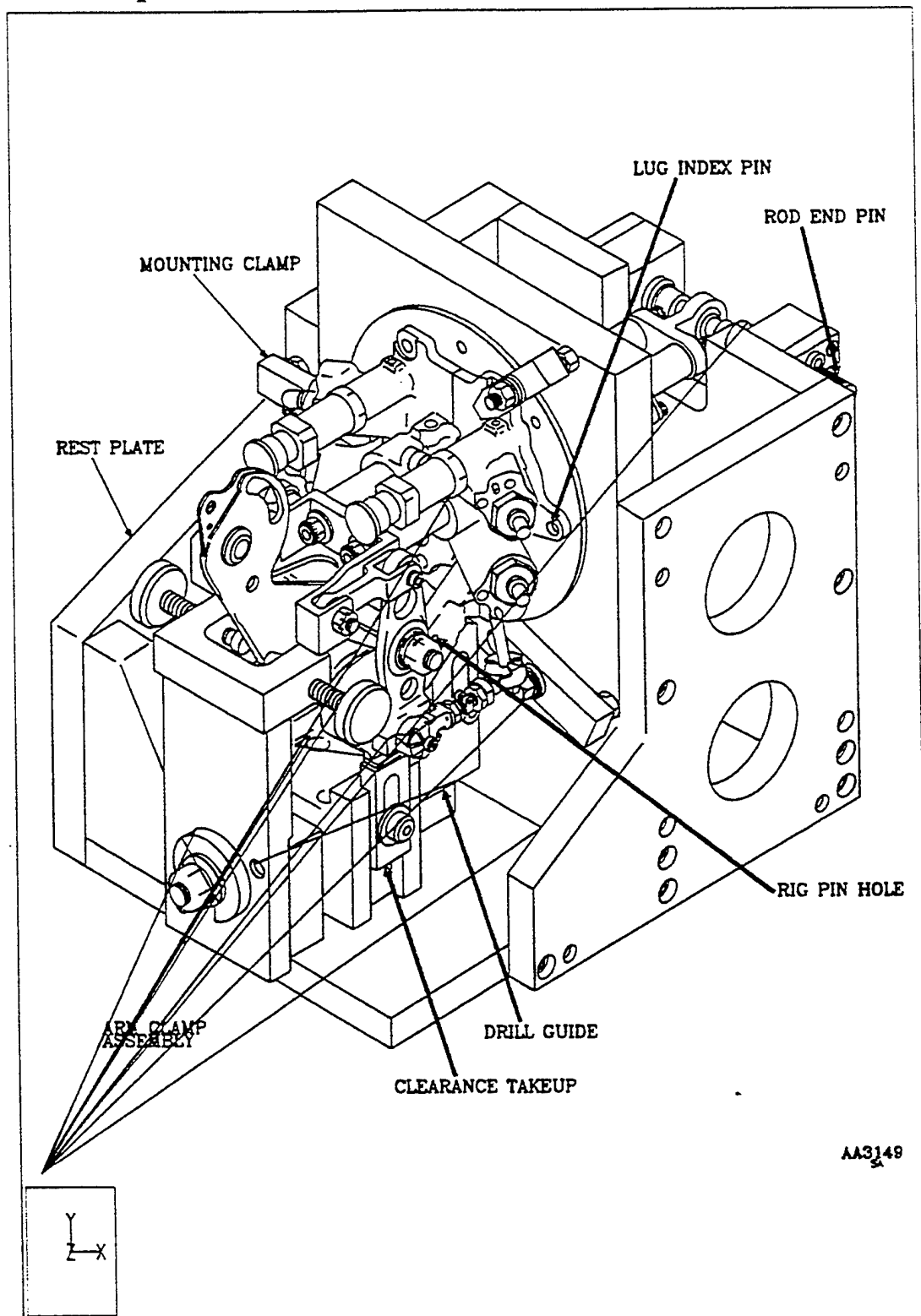
### 11.1.4 Output CALSView



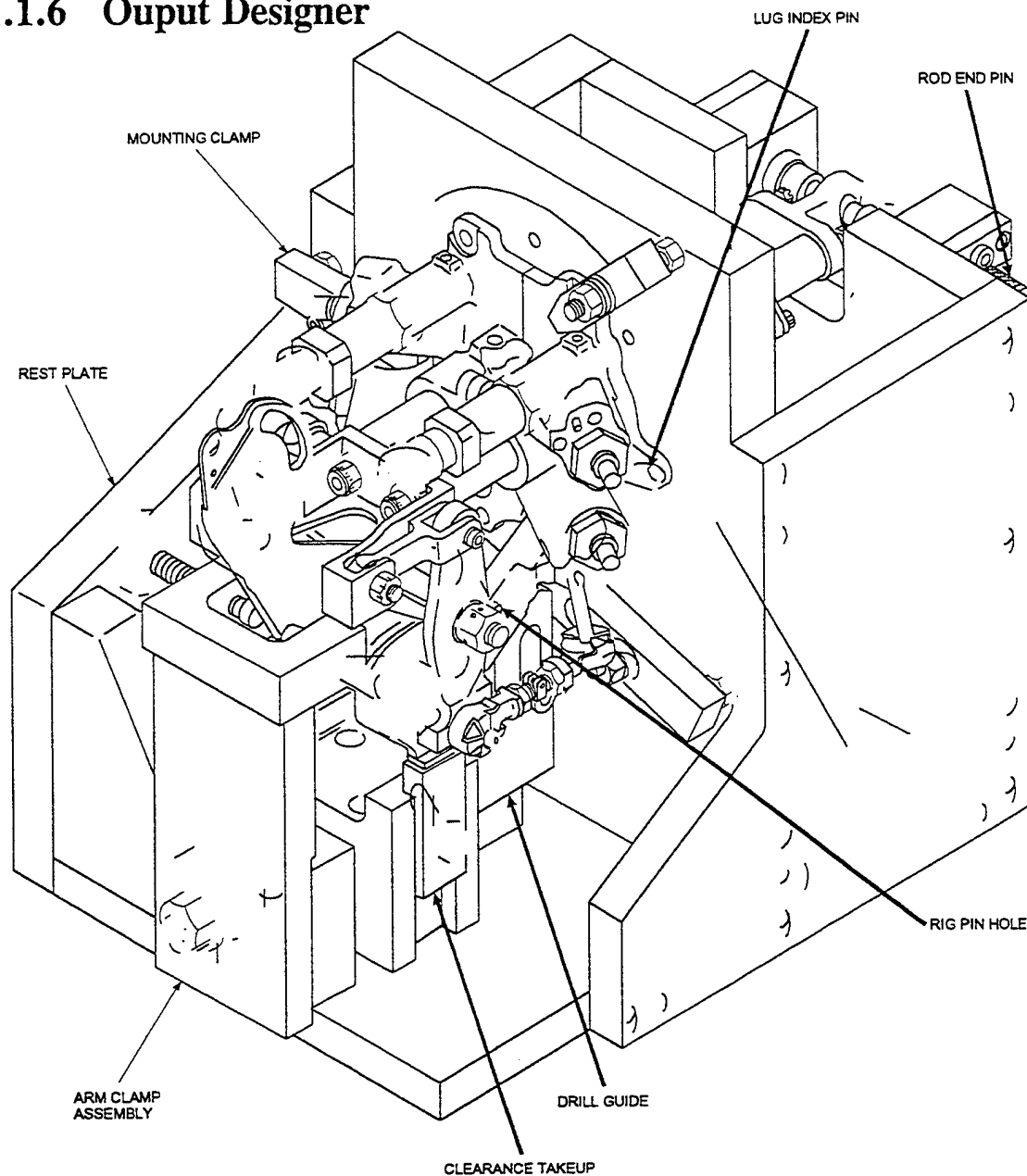
AA3141



### 11.1.5 Output Generic



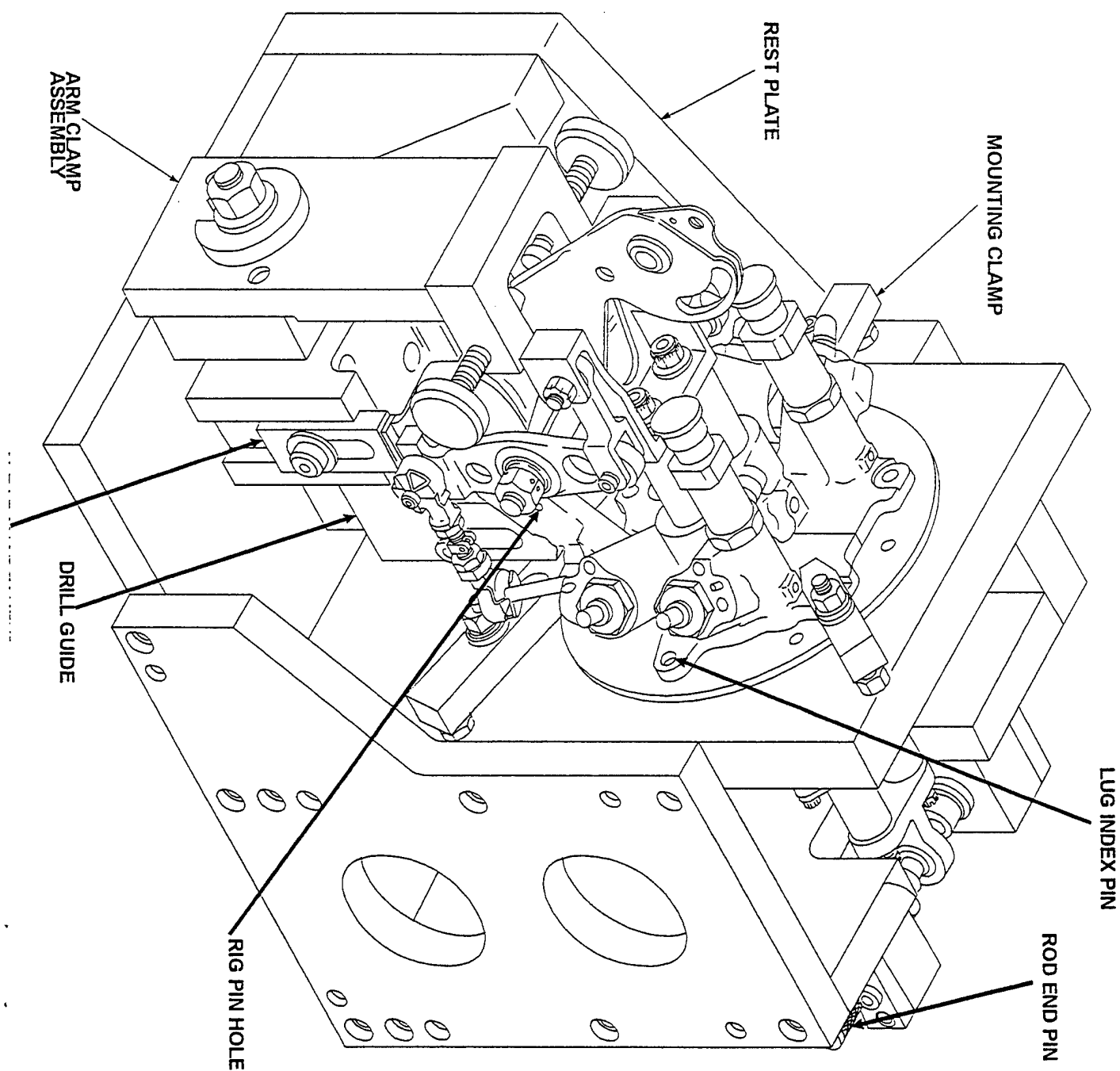
## 11.1.6 Ouput Designer



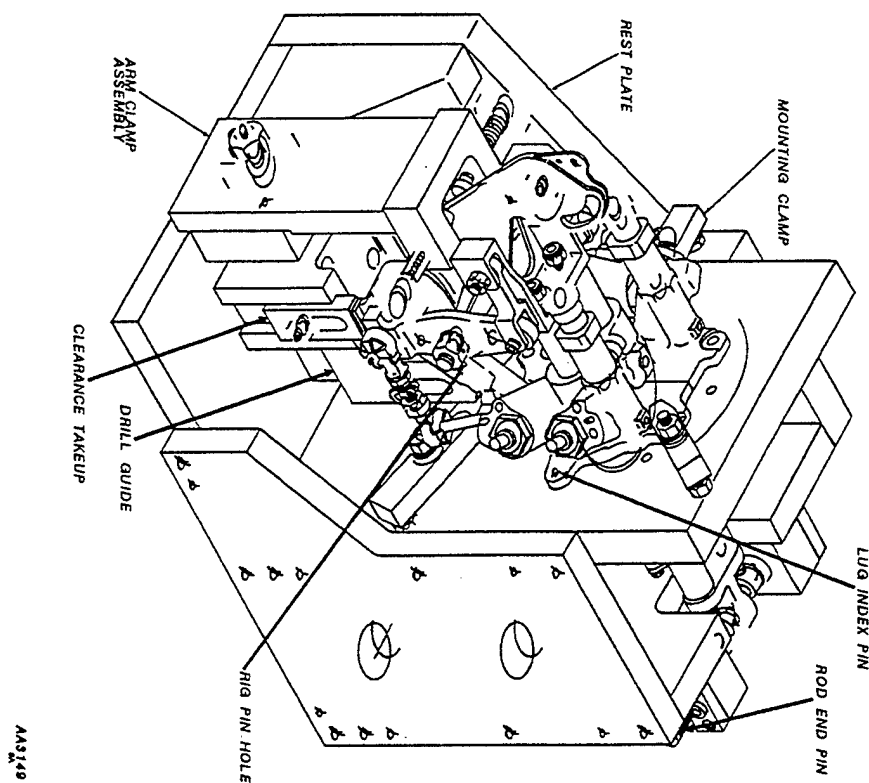
AA3149  
SA

**Designer 4.0**  
**C004**

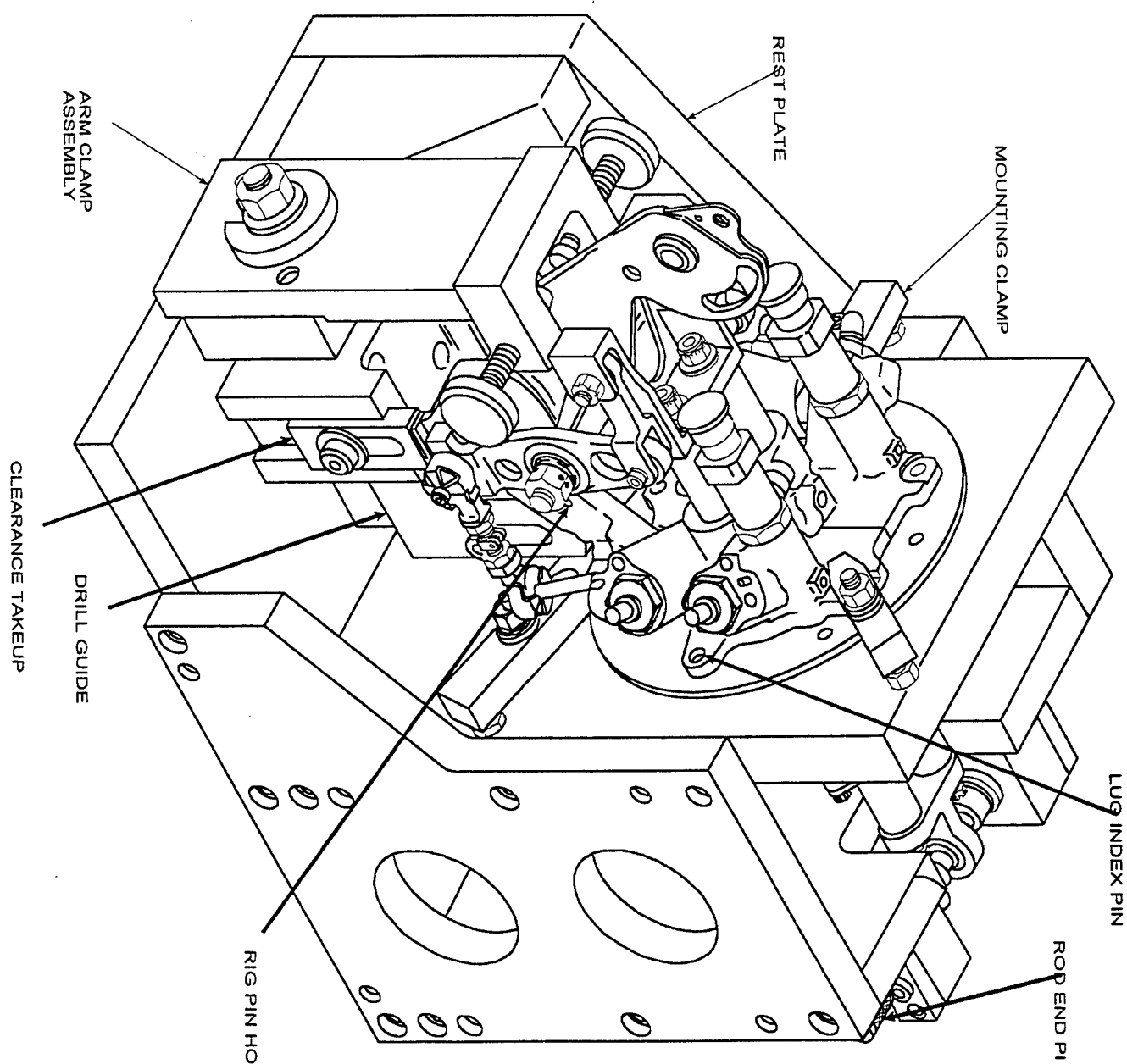
### 11.1.7 Output Freelance



### 11.1.8 Output Harvard Graphics

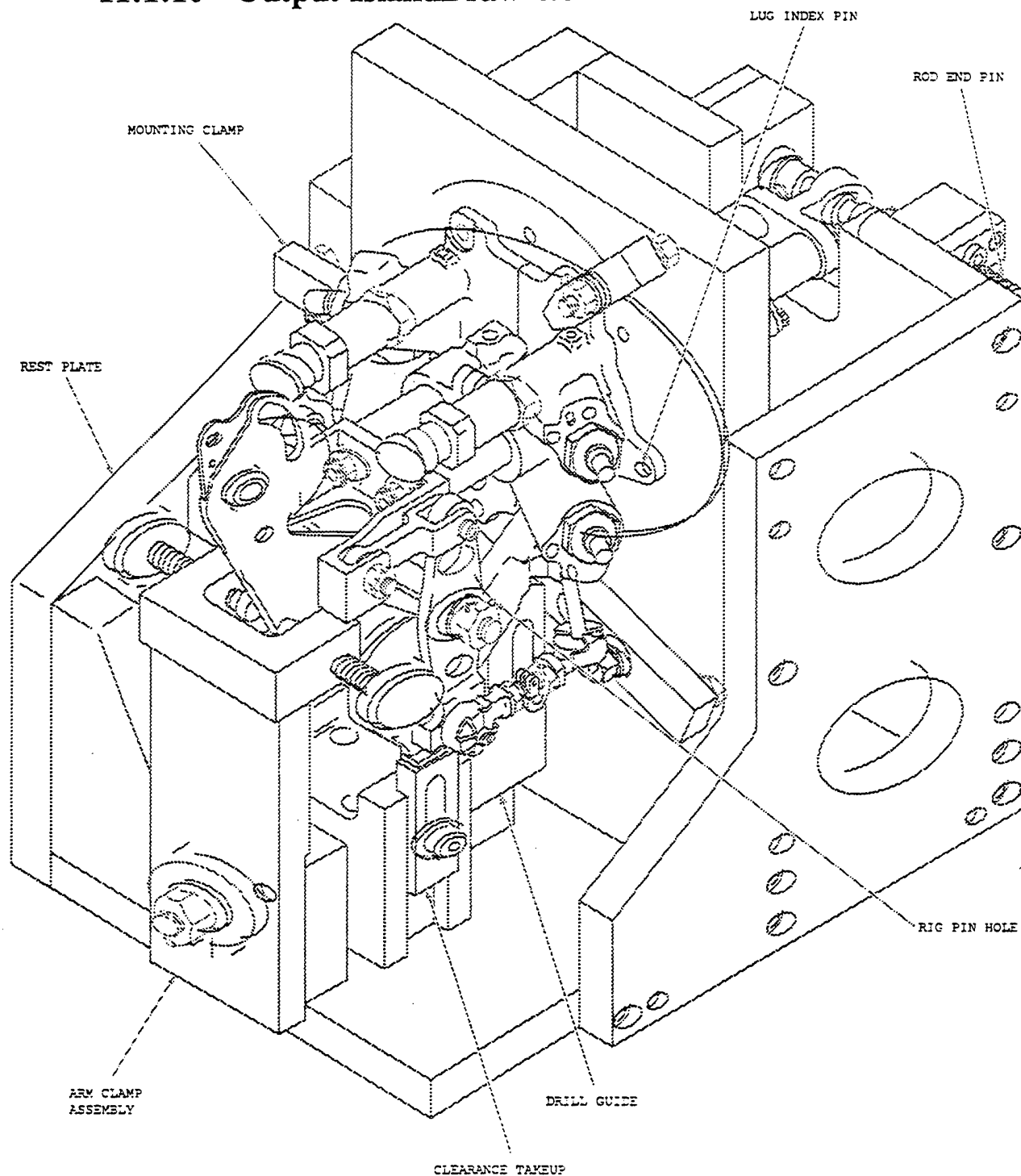


### 11.1.9 Output HiJaak for Windows

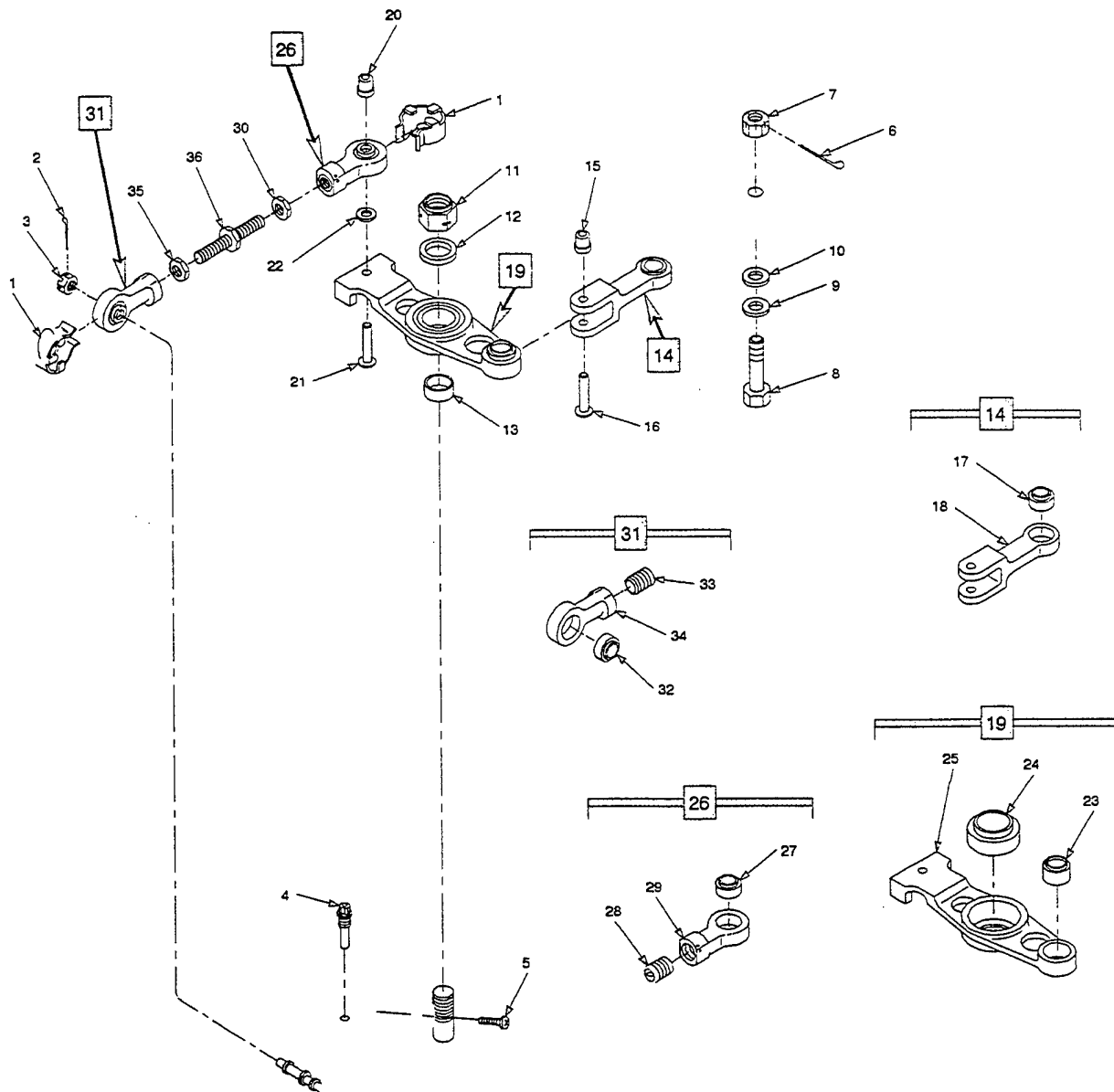


AA3:

### 11.1.10 Output Island Draw 4.0



### 11.1.11 Output Ventura Publisher



## 11.2 File D001C009

### 11.2.1 Parser Log MetaCheck

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-93 CGM Technology Software  
Execution Date: 03/04/94 Time: 15:25:56

Metafile Examined : i:\94009\c009.cgm

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

===== Trace Report =====

Tracing not selected.

===== CGM Conformance Violation Report =====

No Errors Detected

===== CALS CGM Profile (MIL-D-28003) Report =====

Error 6509: Element Class/ID: 1/13 Offset: 84 octets Element No. 9  
Invalid list parameters; each of the Font Names in the FONT LIST element  
must be among the Font Names allowed by the Profile.

===== Conformance Summary Report =====

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer  
Copyright 1988-93 CGM Technology Software  
Execution Date: 03/04/94 Time: 15:30:50

Name of CGM under test: i:\94009\c009.cgm  
Encoding : Binary

Pictures Examined : All  
Elements Examined : All  
Bytes Examined : All

BEGIN METAFILE string : >aa3150<  
METAFILE DESCRIPTION : >AUTO-TROL/REL-1.0 MIL-D-28003/BASIC-<  
>1<

Picture 1 starts at octet offset 136: >aa3150<

---



Conformance Summary : This file conforms to the CGM specification.  
However, this file does not satisfy  
the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

1 Pictures Tested  
1462 Elements Tested  
32234 Octets Tested

|                                          |        |      |
|------------------------------------------|--------|------|
| 0 Illegal CGM Elements                   | 1000 - | 1999 |
| 0 Incorrect CGM Element Lengths          | 2000 - | 2999 |
| 0 CGM State Errors                       | 3000 - | 3499 |
| 0 Required CGM Elements Missing or Wrong | 4000 - | 4499 |
| 0 CGM Parameter Values Out of Range      | 6000 - | 6499 |
| 0 CGM Structure Errors                   | 7000 - | 7499 |
| 0 *** CGM Errors Found (total) ***       |        |      |

|                                            |        |      |
|--------------------------------------------|--------|------|
| 0 Profile State Errors                     | 3500 - | 3999 |
| 0 Illegal Profile Elements                 | 4500 - | 4999 |
| 1 Profile Parameter Values Out of Range    | 6500 - | 6999 |
| 0 Profile Data Limits Exceeded             | 8500 - | 8999 |
| 0 Other Profile Constraints Violated       | 9500 - | 9999 |
| 1 *** Profile Violations Found (total) *** |        |      |

1 distinct error(s) and warning(s) reported.

===== End of Conformance Report =====

## 11.2.2 validcgm Log

Analysis for file c009.cgm using table table and Font List

MILSPEC 28003 error: illegal font name HELVETICA

MILSPEC 28003 error: illegal font name HELEVITICA\_BOLD

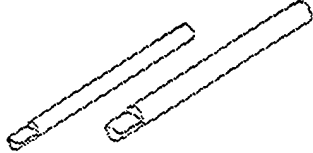
MILSPEC 28003 error: illegal font name FRANKLINGOTHIC-HEAVY

(9, 84) (1, 13, 48)

(0, 1) occurred 1 time  
(0, 2) occurred 1 time  
(0, 3) occurred 1 time  
(0, 4) occurred 1 time  
(0, 5) occurred 1 time  
(1, 1) occurred 1 time  
(1, 2) occurred 1 time  
(1, 5) occurred 1 time  
(1, 7) occurred 1 time  
(1, 8) occurred 1 time  
(1, 9) occurred 1 time  
(1, 11) occurred 1 time  
(1, 13) occurred 1 time  
(2, 1) occurred 1 time  
(2, 3) occurred 1 time  
(2, 4) occurred 1 time  
(2, 5) occurred 1 time  
(2, 6) occurred 1 time  
(2, 7) occurred 1 time  
(4, 1) occurred 1123 times  
(4, 4) occurred 32 times  
(4, 7) occurred 18 times  
(4, 12) occurred 1 time  
(4, 15) occurred 95 times  
(4, 17) occurred 19 times  
(4, 18) occurred 7 times  
(5, 3) occurred 15 times  
(5, 4) occurred 10 times  
(5, 10) occurred 3 times  
(5, 13) occurred 2 times  
(5, 15) occurred 5 times  
(5, 16) occurred 1 time  
(5, 18) occurred 1 time  
(5, 22) occurred 7 times  
(5, 23) occurred 15 times  
(5, 28) occurred 2 times  
(5, 29) occurred 15 times  
(5, 30) occurred 37 times  
(5, 34) occurred 35 times

### 11.2.3 Output CADLeaf

SMALL DIA. GAGE PIN



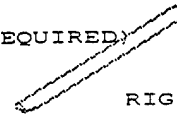
LARGE DIA. GAGE PIN



0.350 / 0.650 GAGE

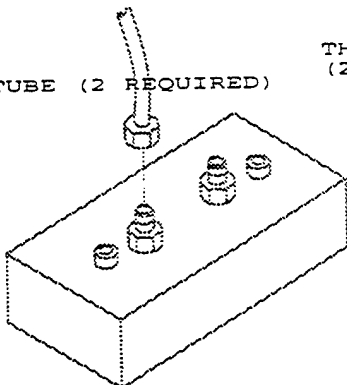


STOP BLOCK (2 REQUIRED)



RIG PIN

DRAIN TUBE (2 REQUIRED)

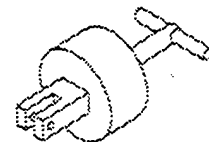


QUICK-DISCONNECT BLOCK  
(2 REQUIRED)

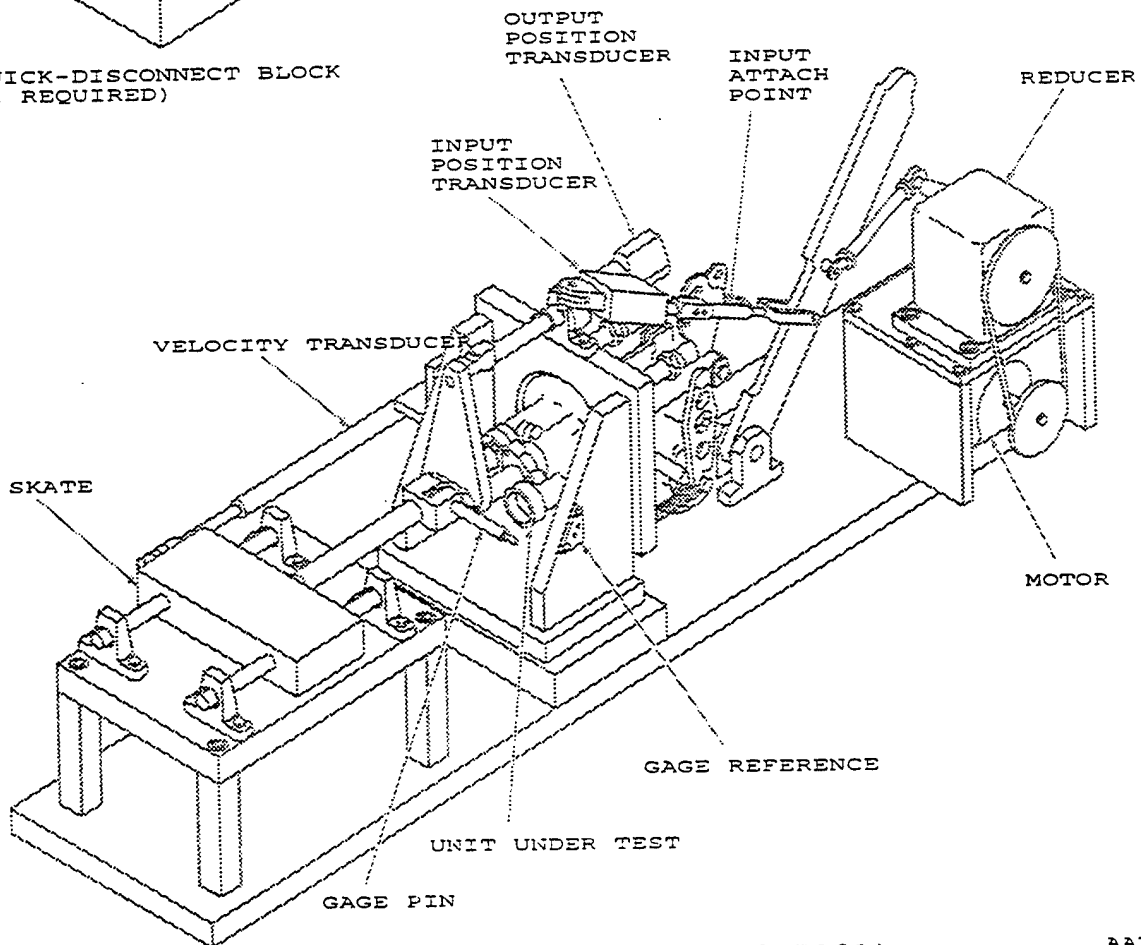
THERMO VALVE CAP  
(2 REQUIRED)



INPUT BALL ASSEMBLY



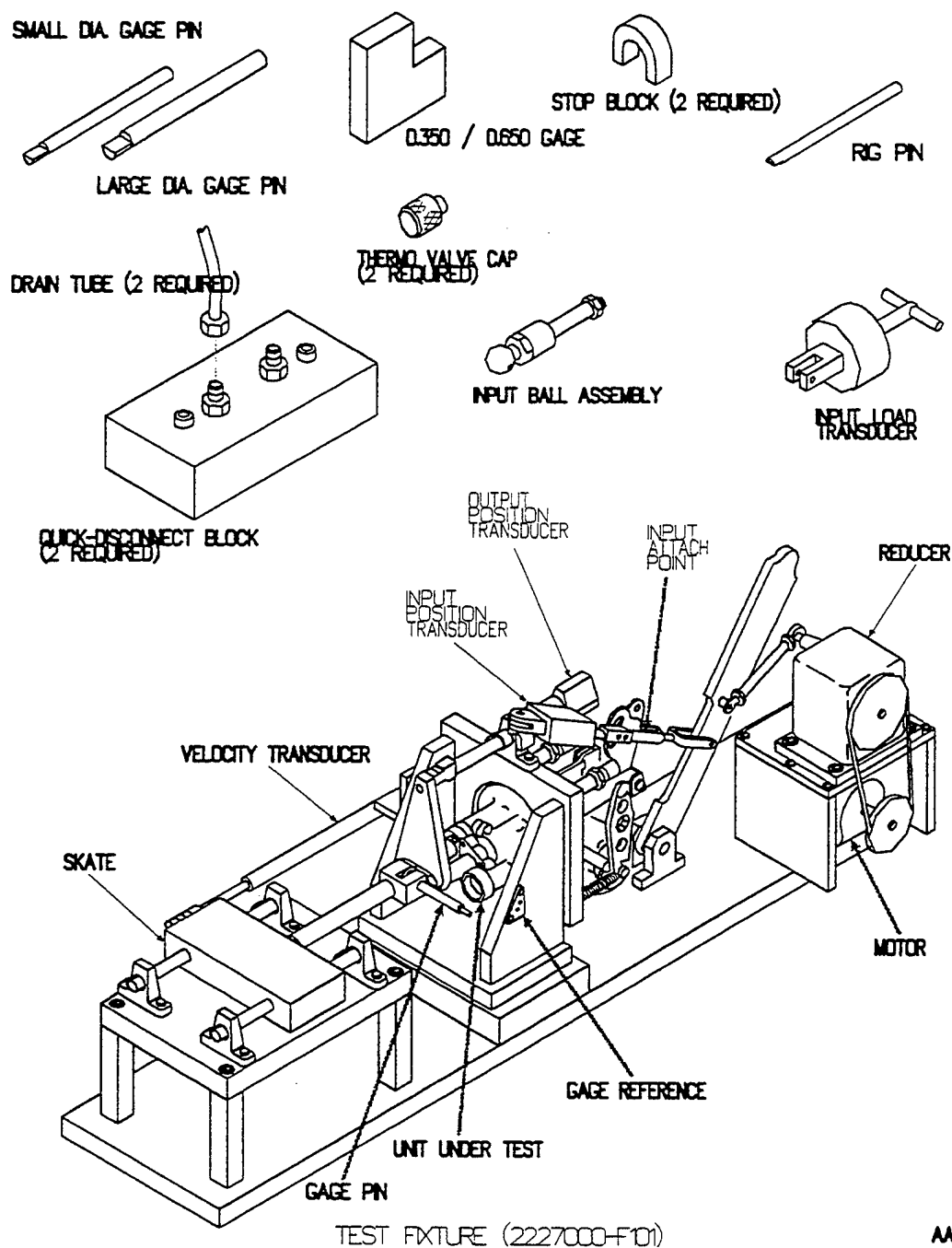
INPUT LOAD  
TRANSDUCER



TEST FIXTURE (2227000-F101)

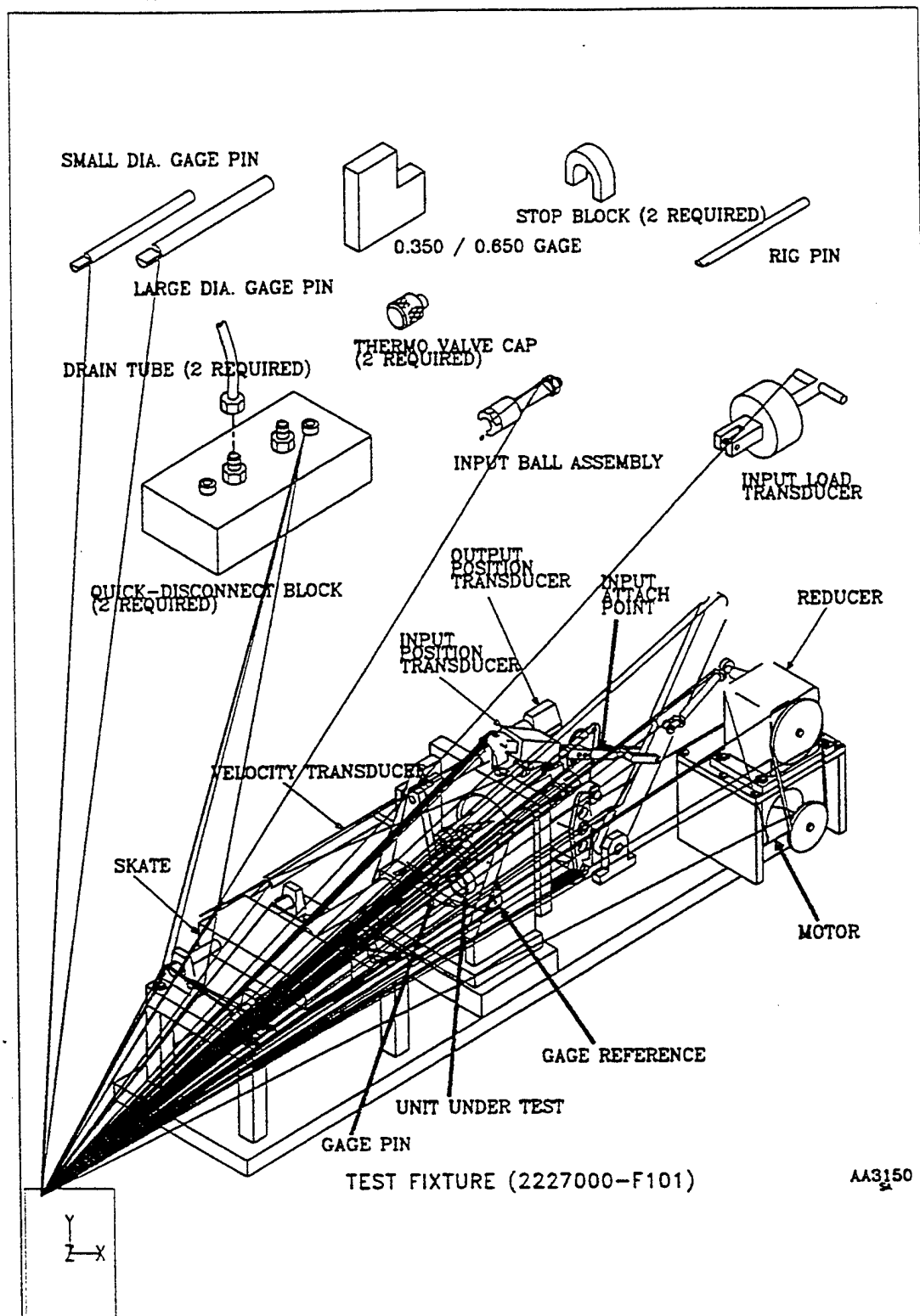
AA31  
SA

## 11.2.4 Output CALSView

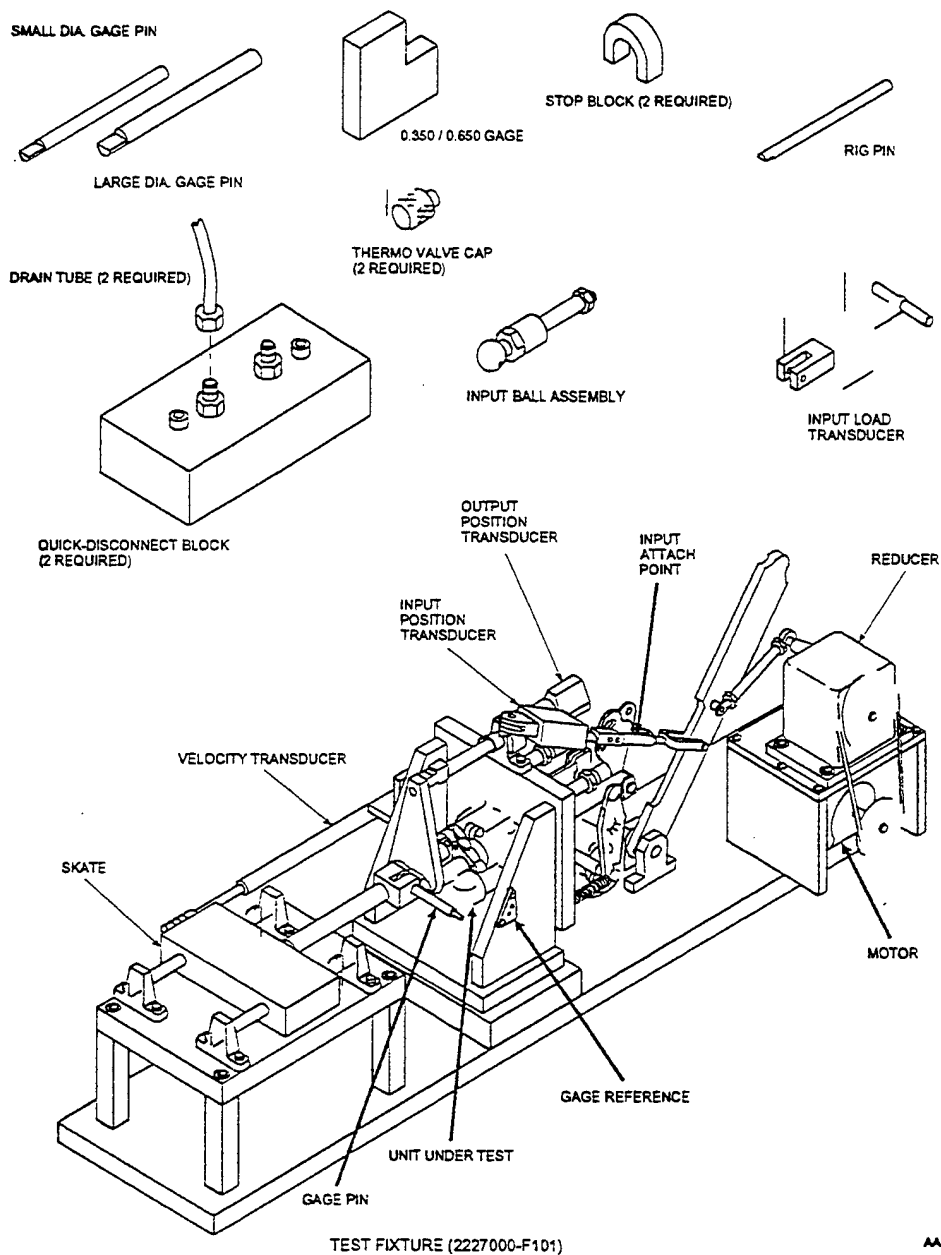


AASIX

## 11.2.5 Output Generic



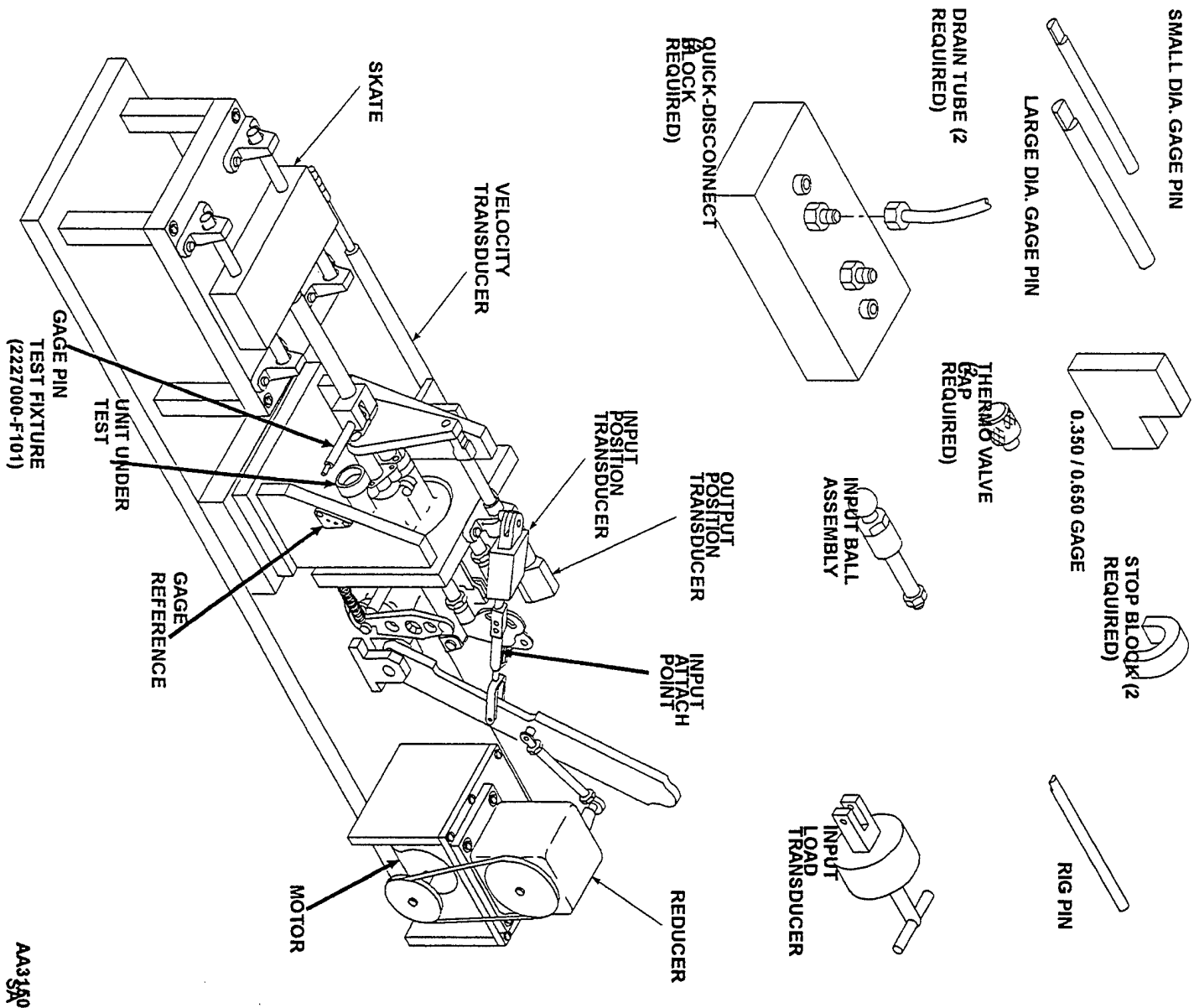
## 11.2.6 Ouput Designer



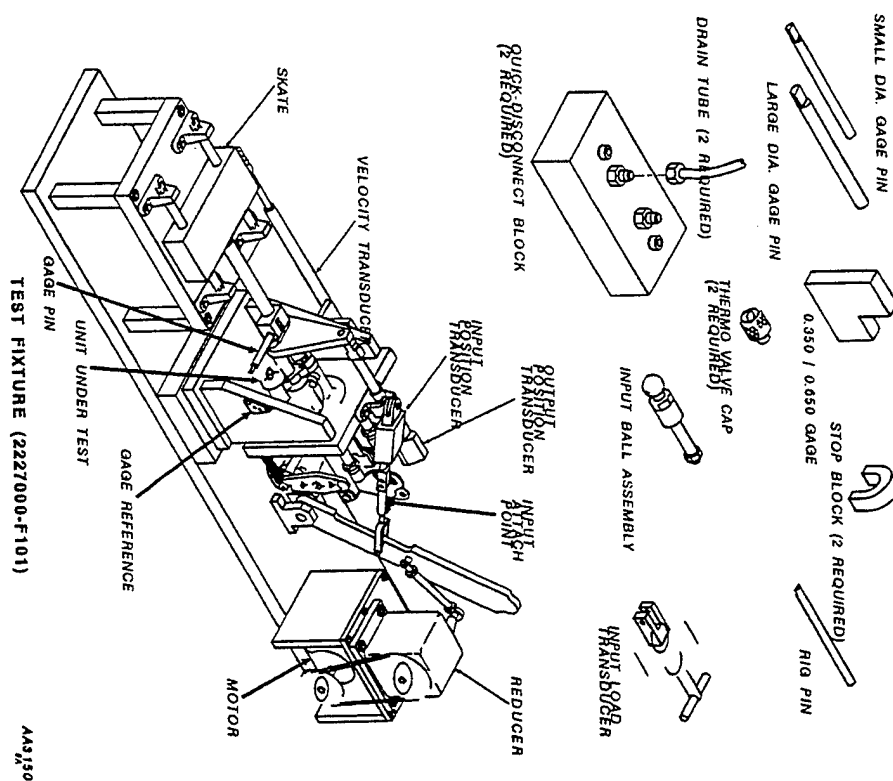
Designer 4.0

C009

## 11.2.7 Output Freelance

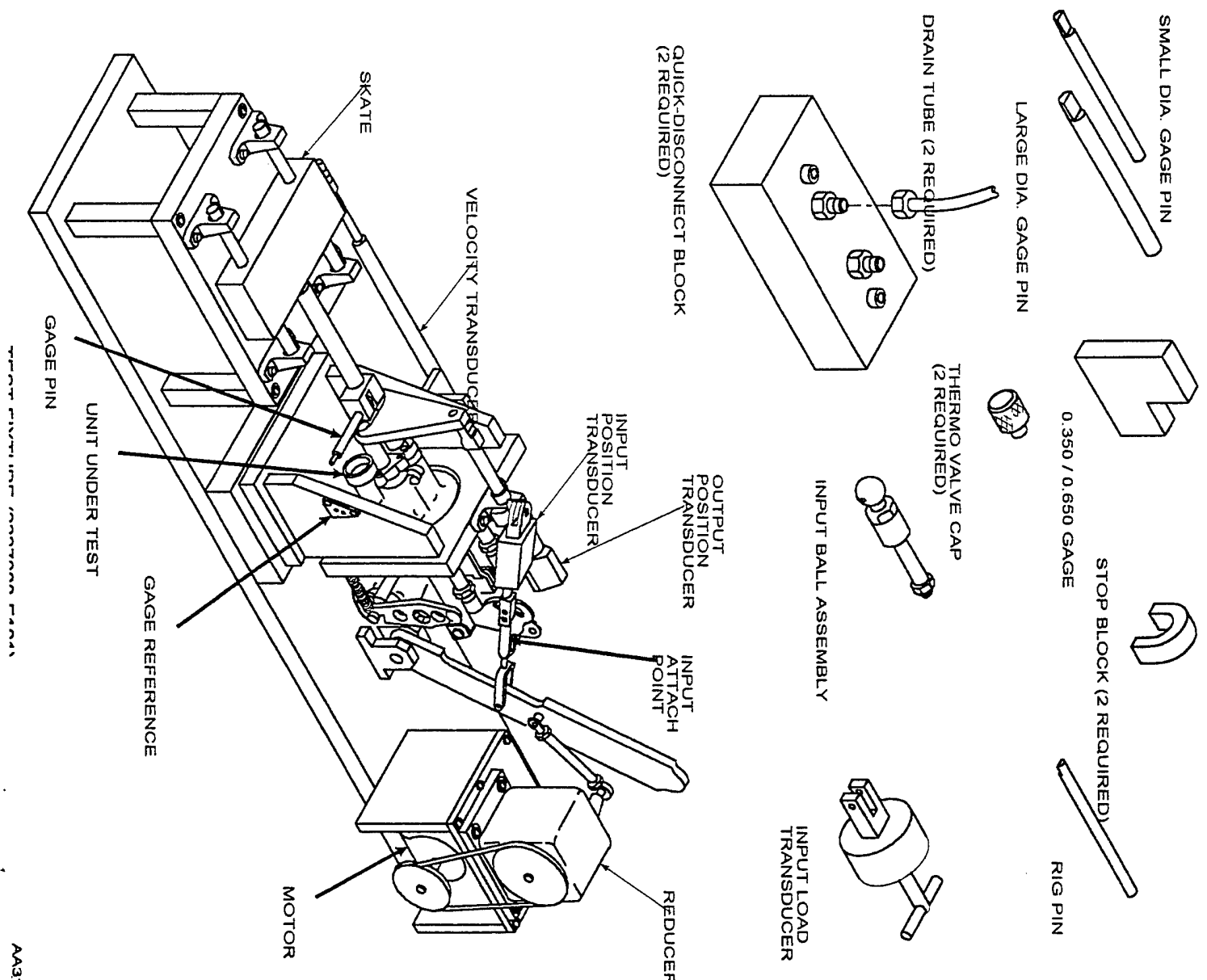


## 11.2.8 Output Harvard Graphics

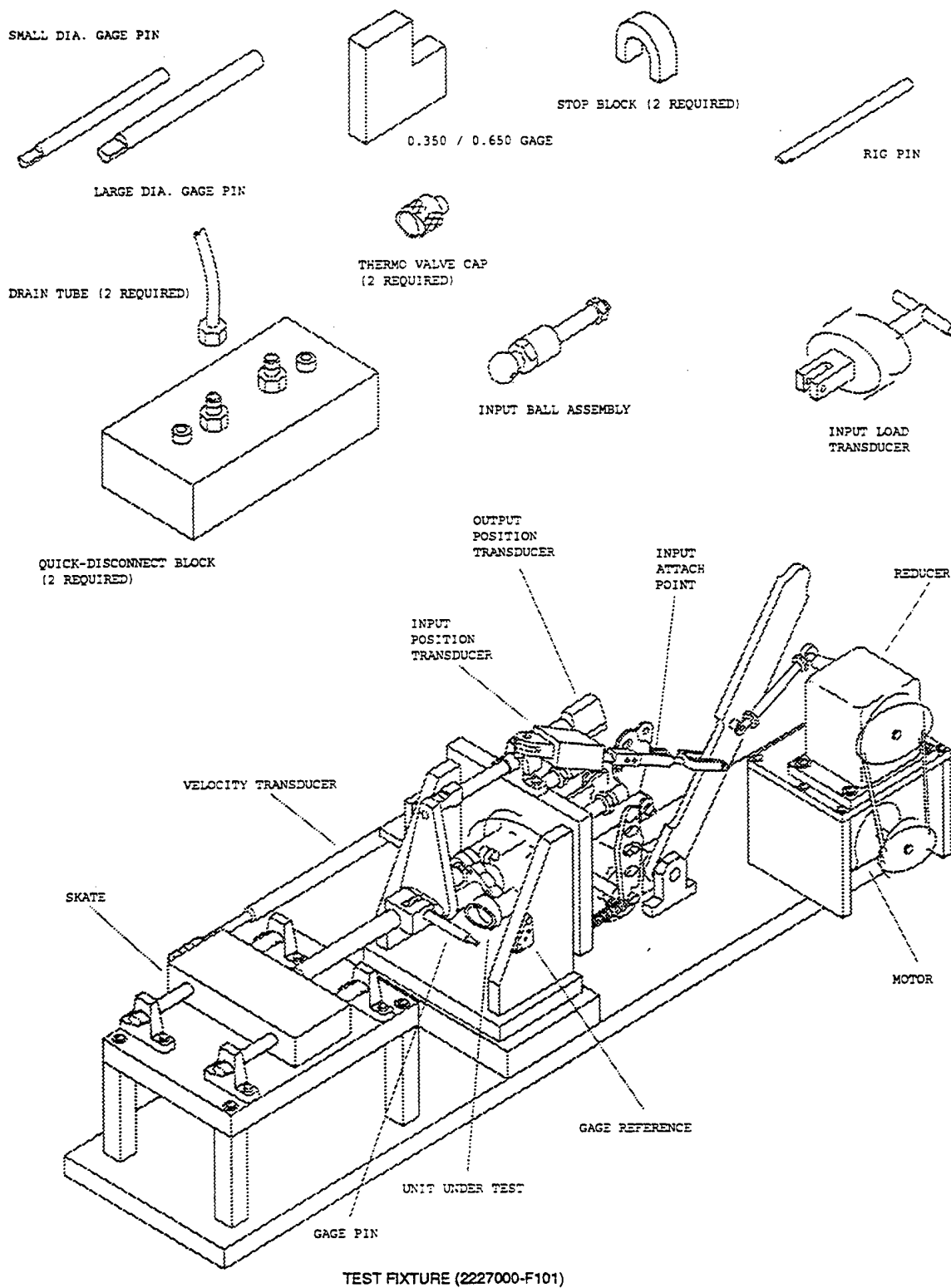




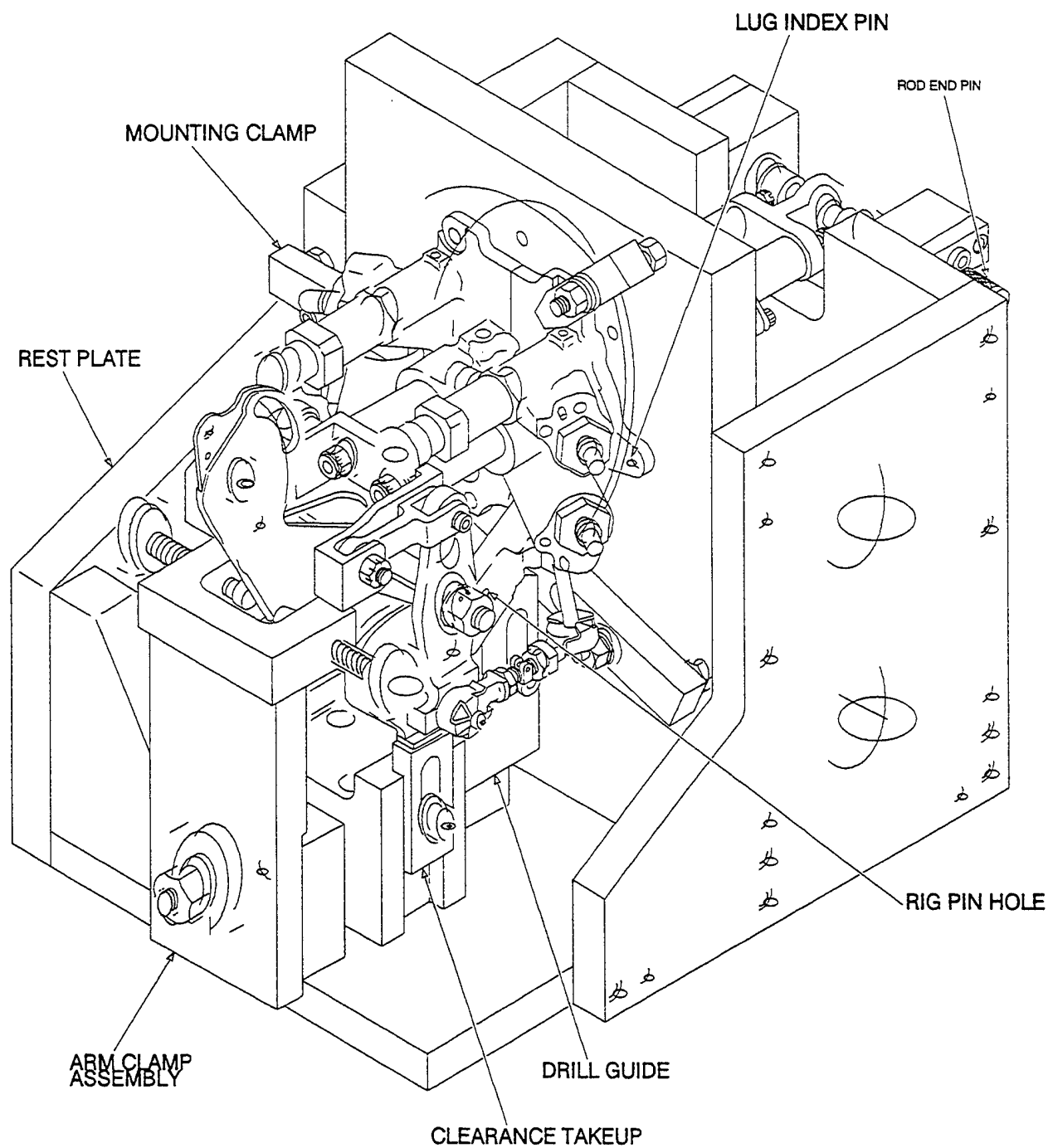
## 11.2.9 Output HiJaak for Windows



## 11.2.10 Output Island Draw 4.0



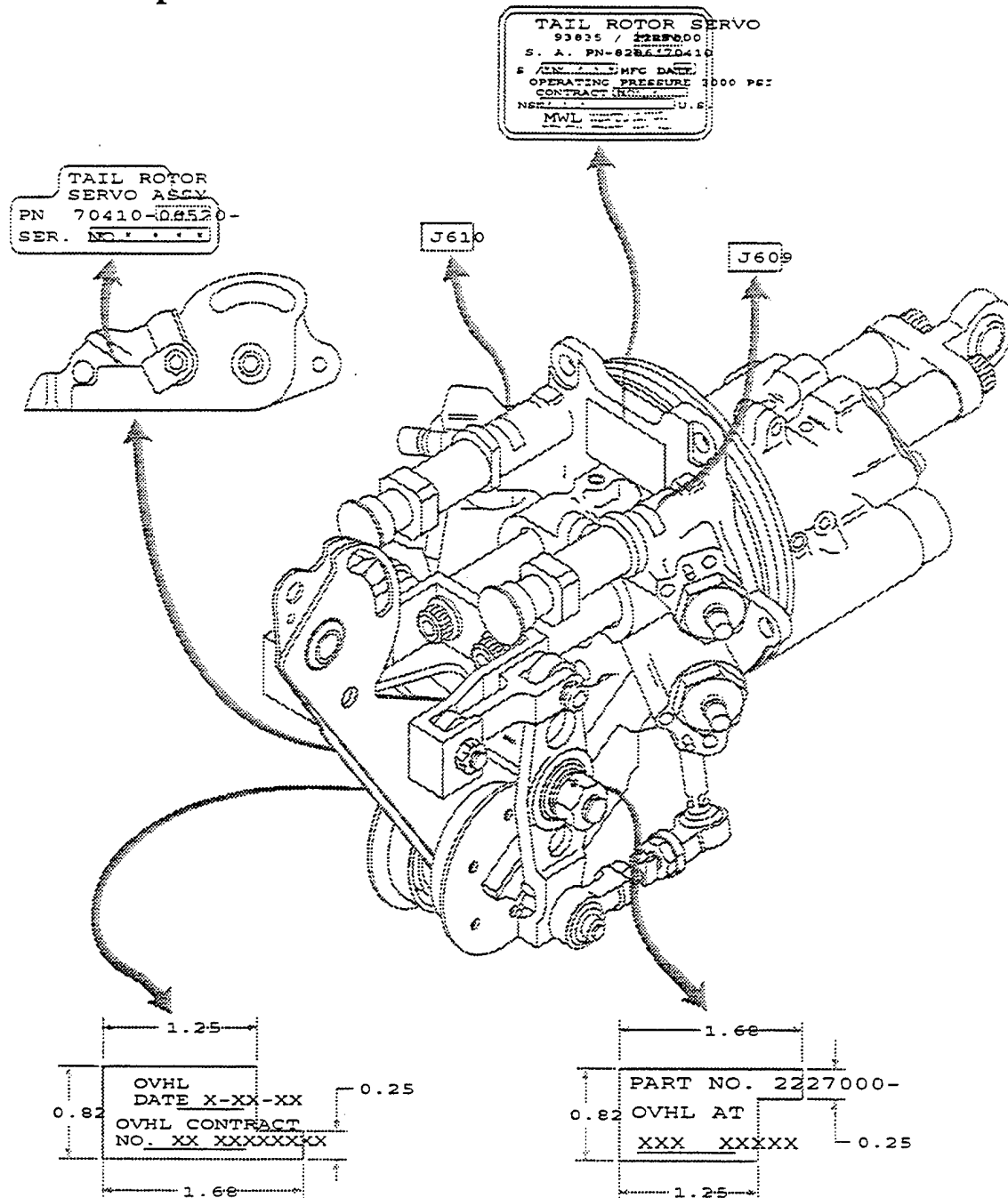
## 11.2.11 Output Ventura Publisher



AA3149

## 11.3 File D001C018

### 11.3.1 Output CADLeaf

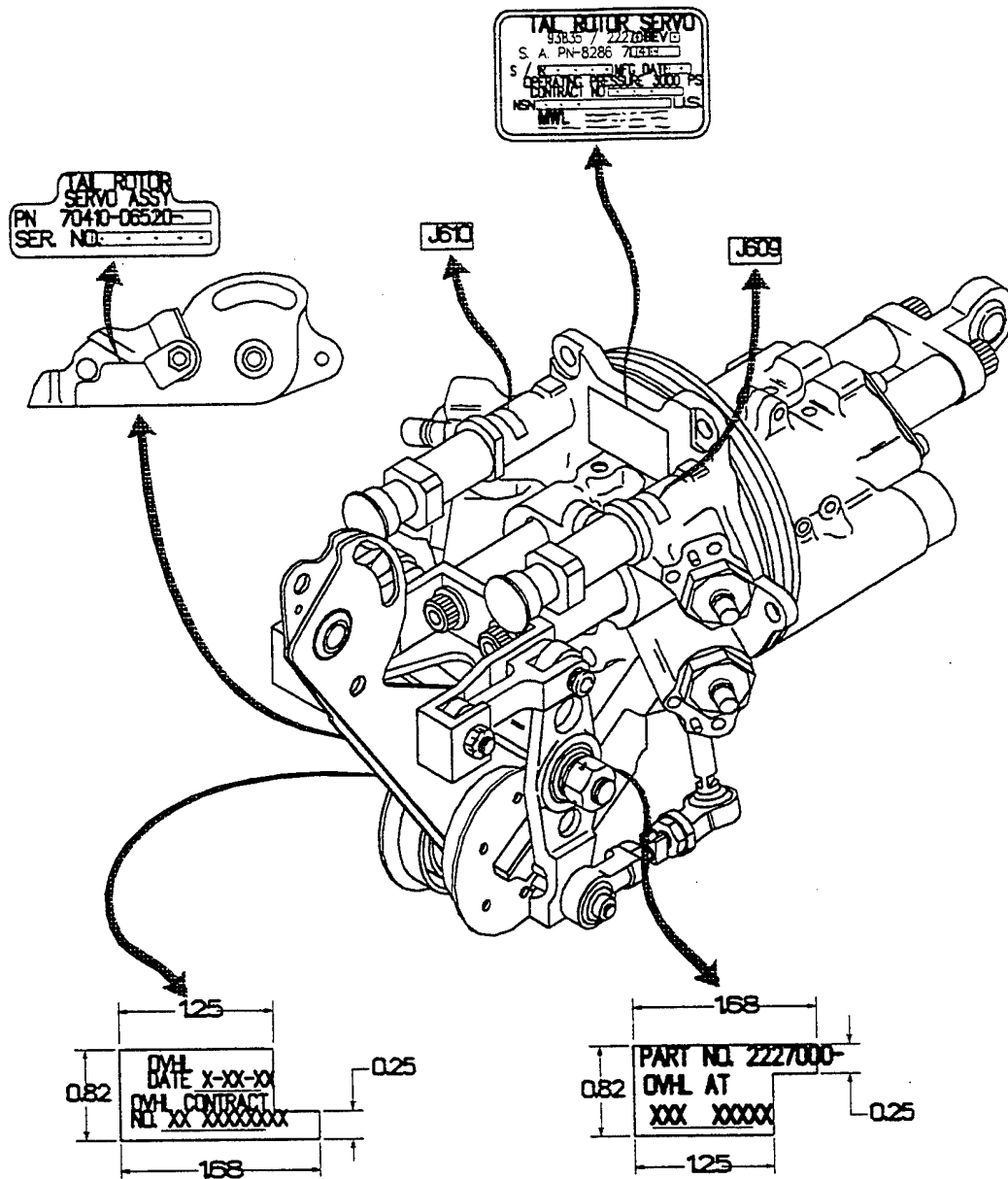


NOTE

ALL DIMENSIONS ARE IN INCHES.

AA30  
BA

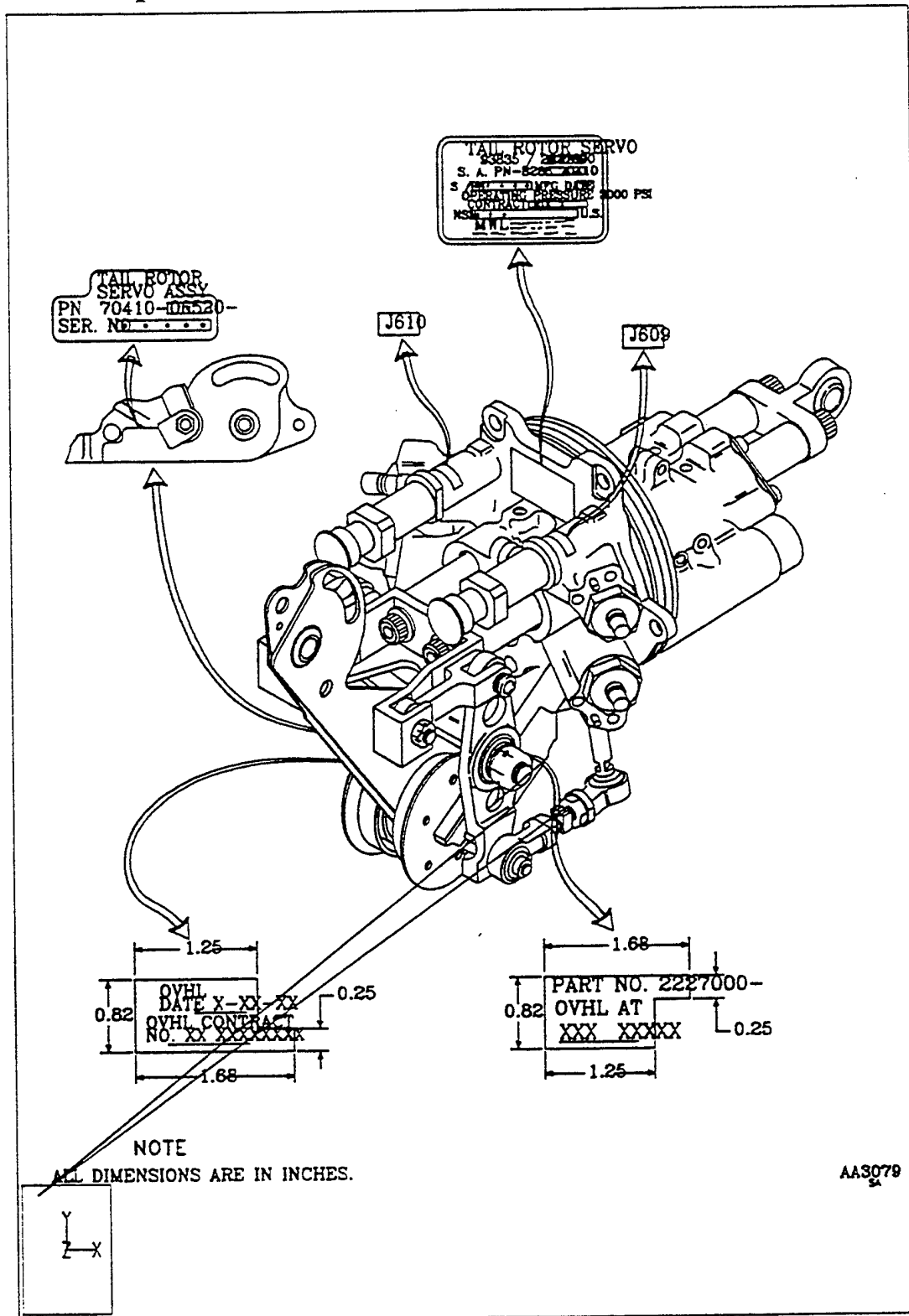
### 11.3.2 Output CALSView



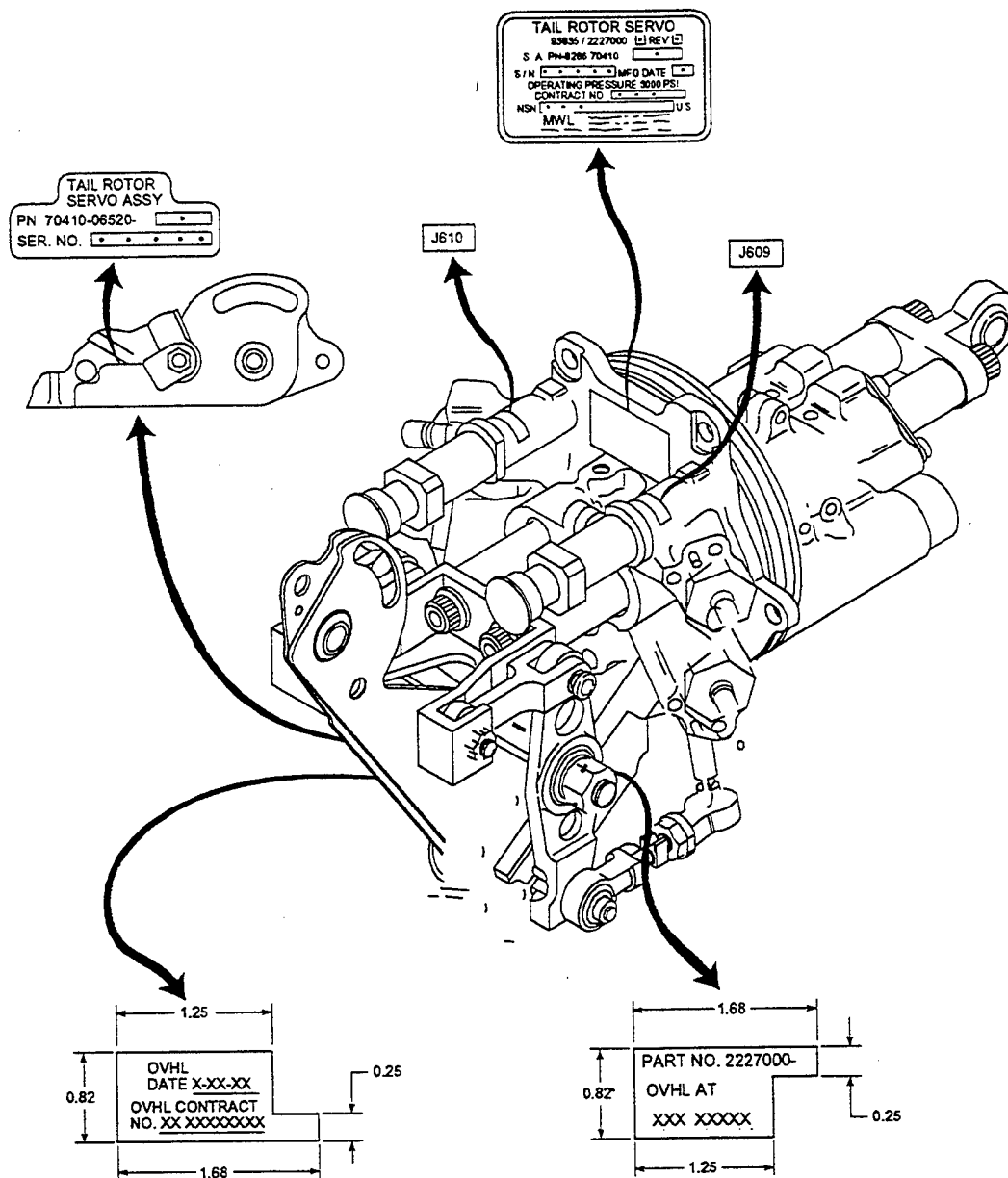
NOTE  
ALL DIMENSIONS ARE IN INCHES

AA307

### 11.3.3 Output Generic



### 11.3.4 Ouput Designer



NOTE  
ALL DIMENSIONS ARE IN INCHES.

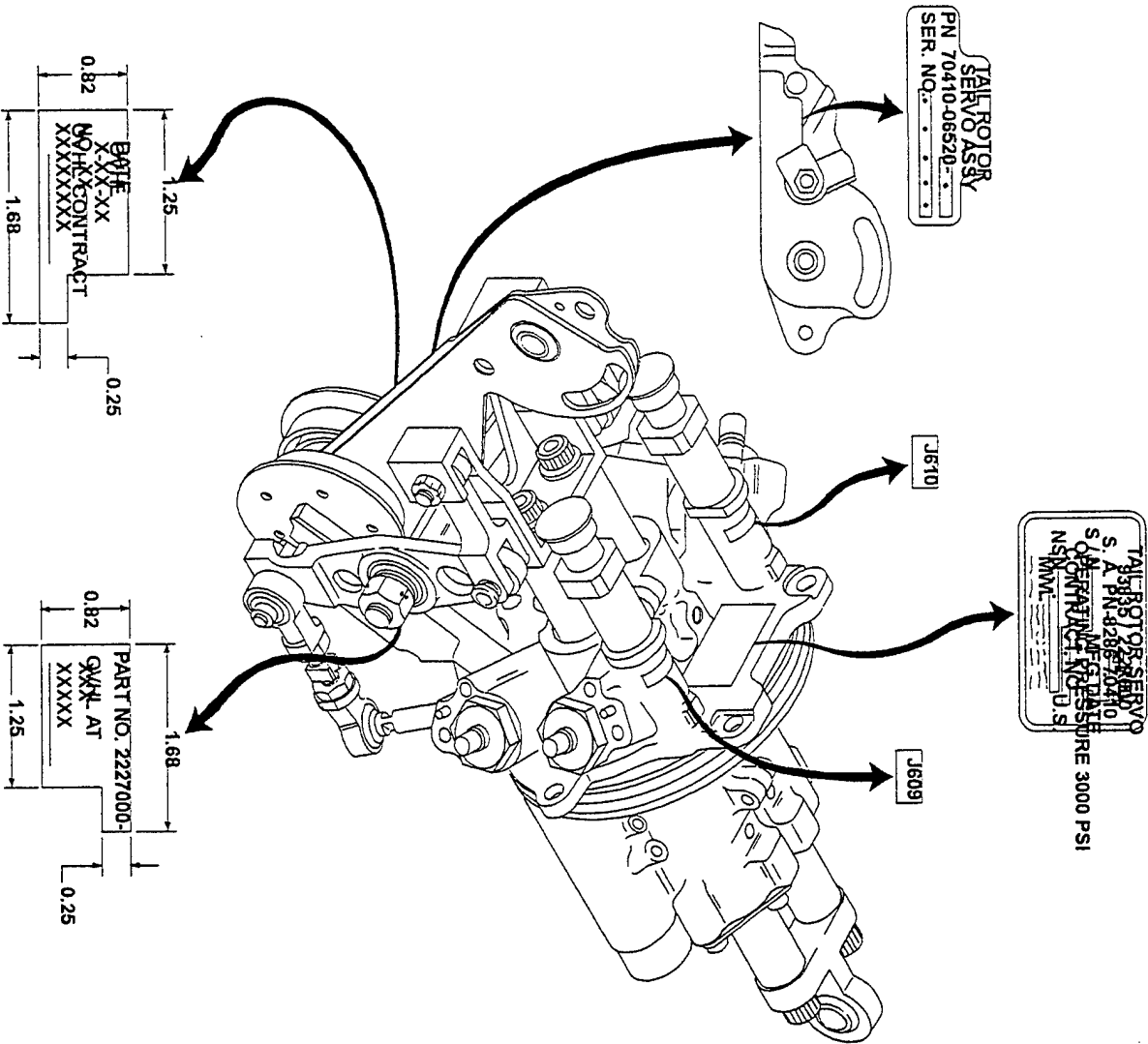
AA3079  
SA

Designer 4.0

C018

11.3.5 Output Freelance

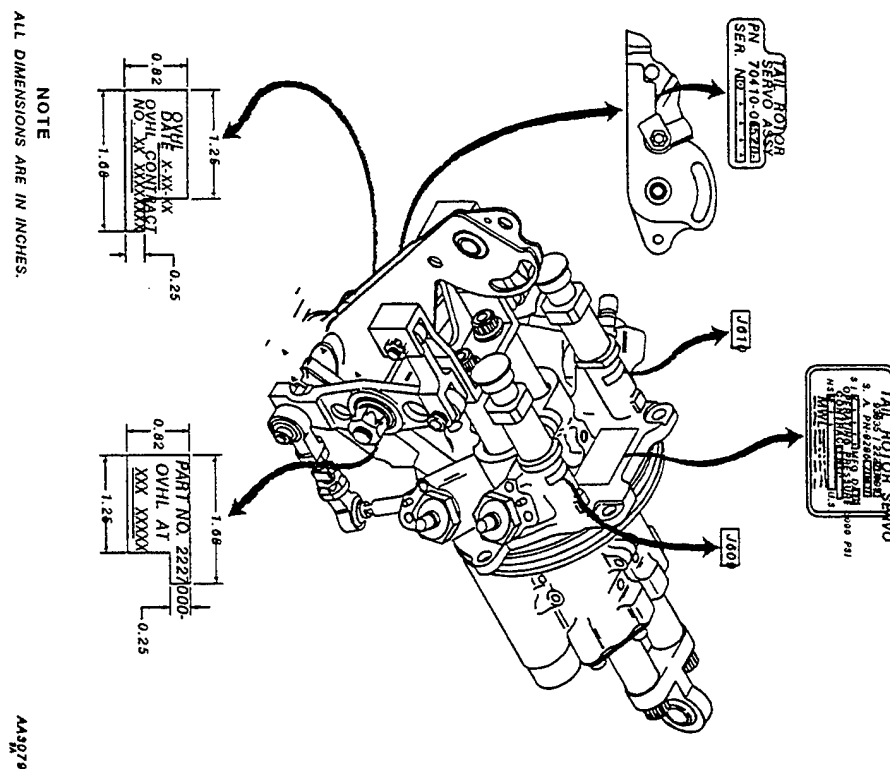
NOTE  
ALL DIMENSIONS ARE IN INCHES.



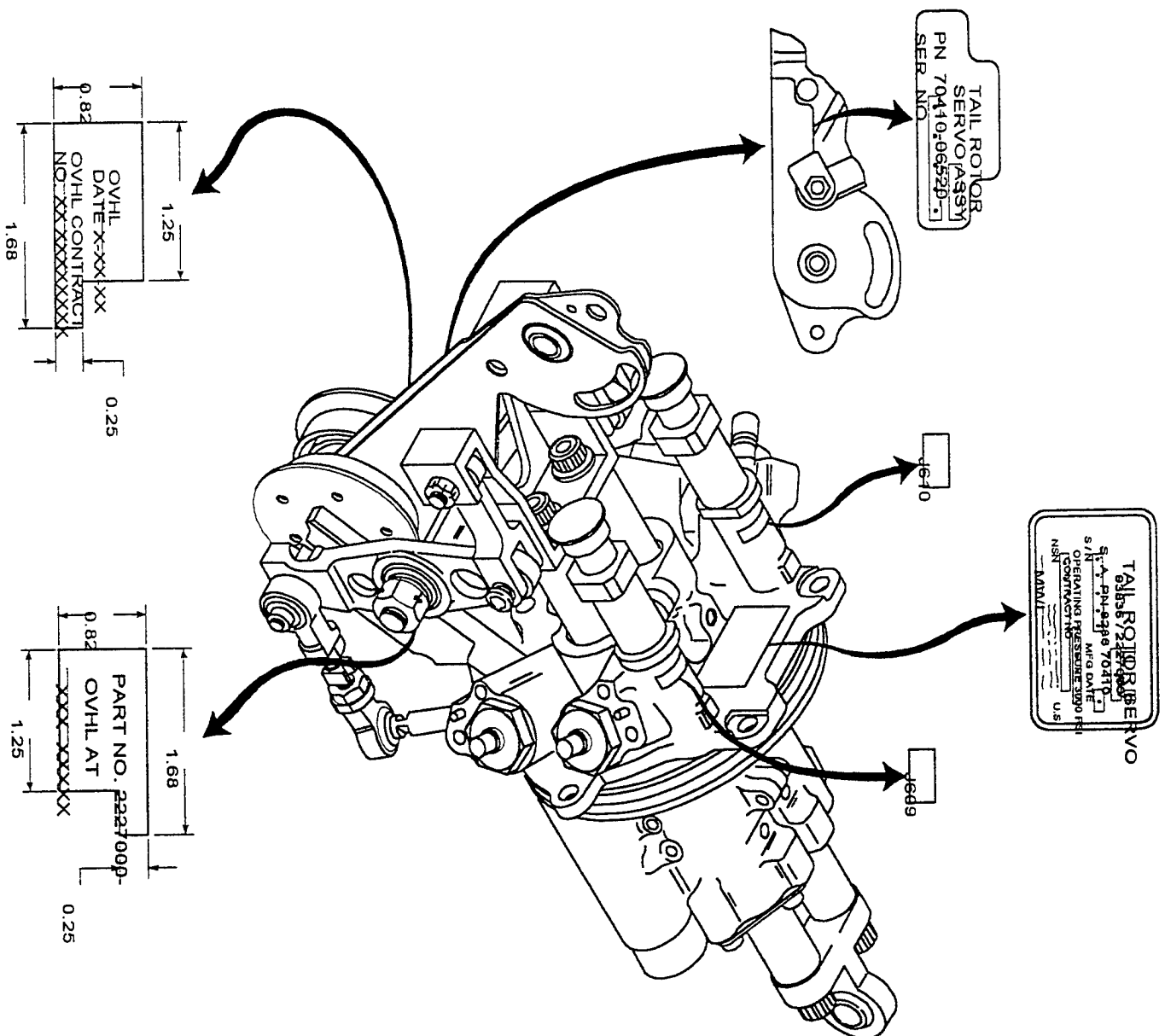
AA3G78



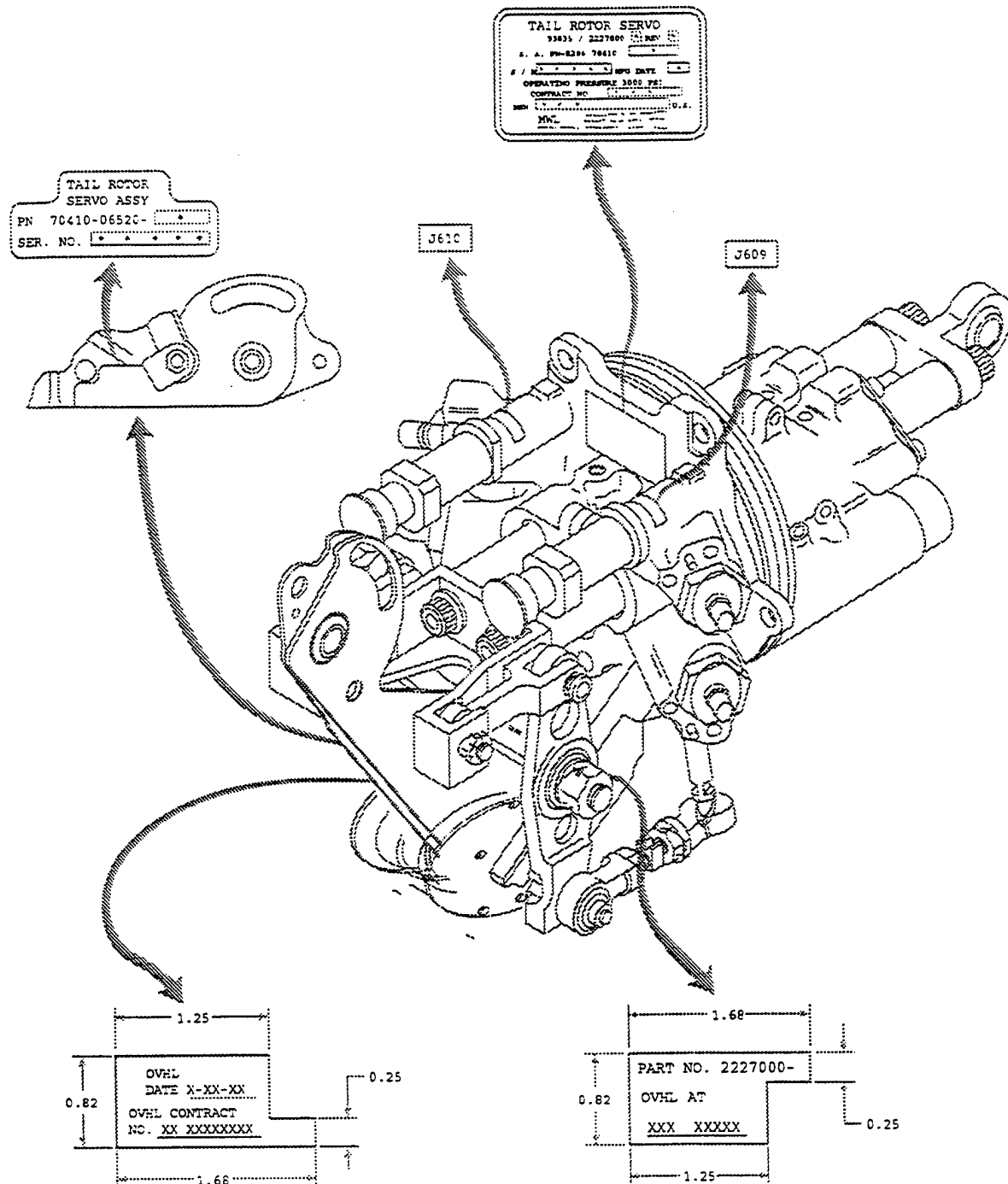
Harvard Graphics  
C018



### 11.3.7 Output HiJaak for Windows



## 11.3.8 Output Island Draw 4.0

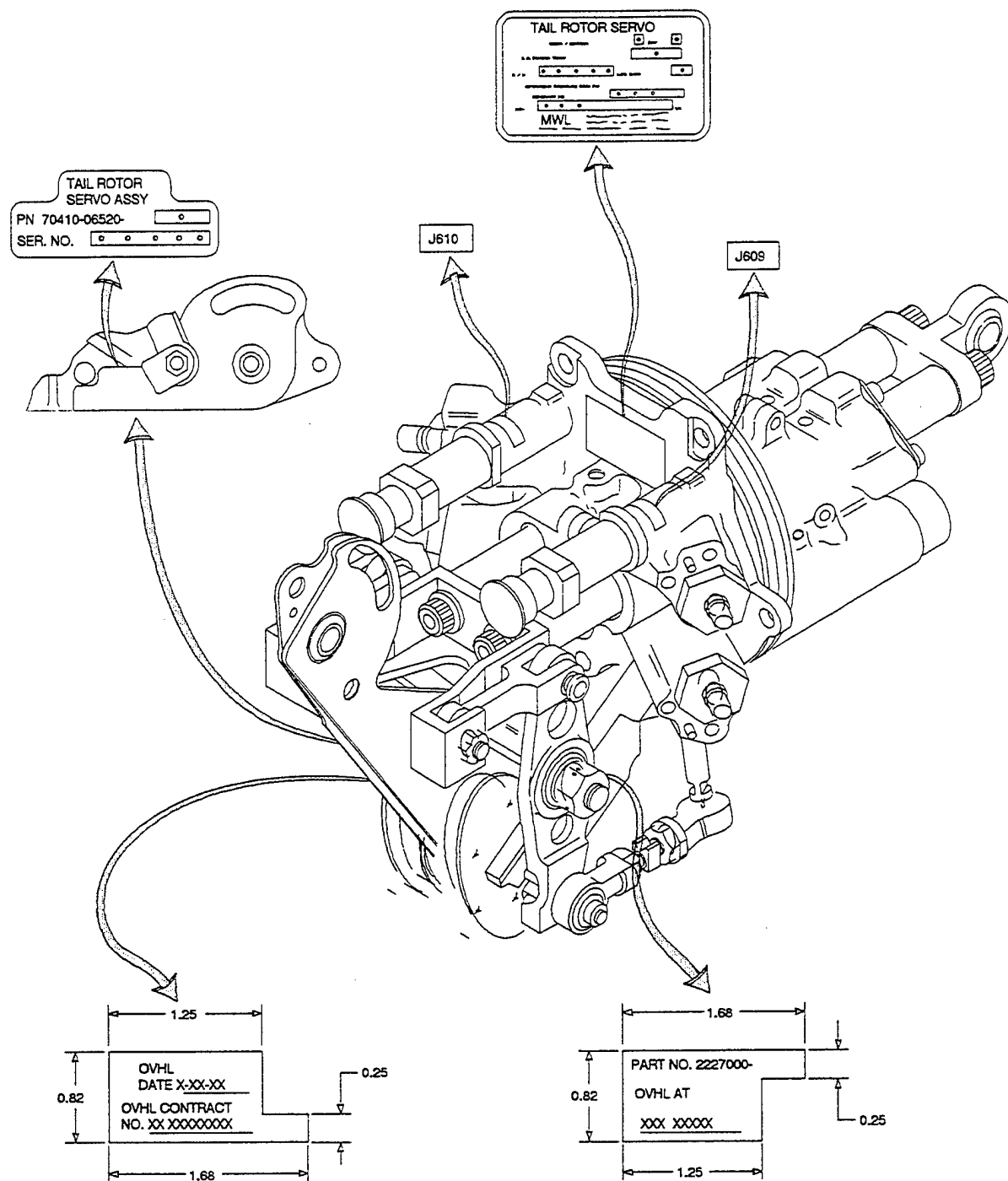


**NOTE**

ALL DIMENSIONS ARE IN INCHES.

AA3079

## 11.3.9 Output Ventura Publisher

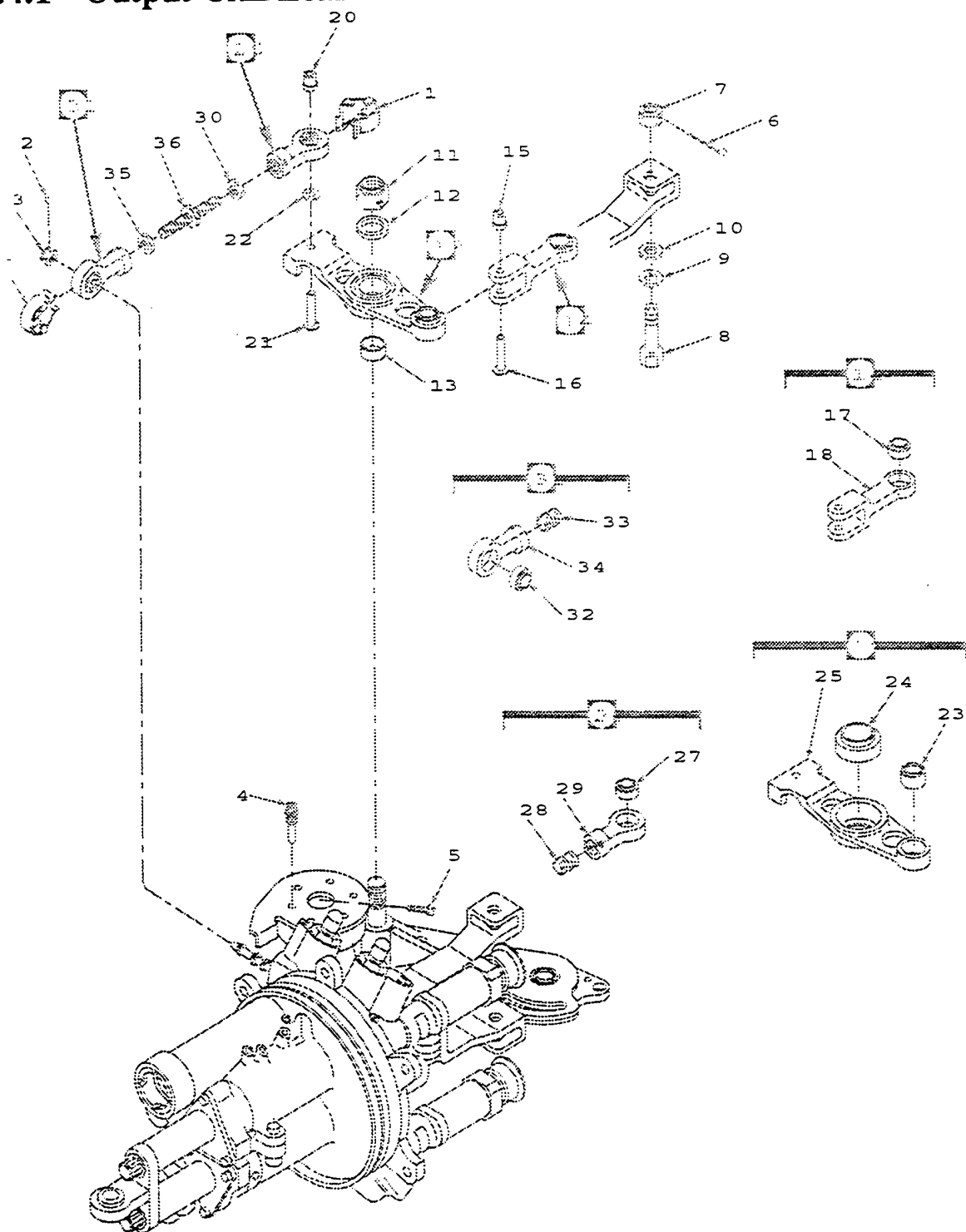


**NOTE**

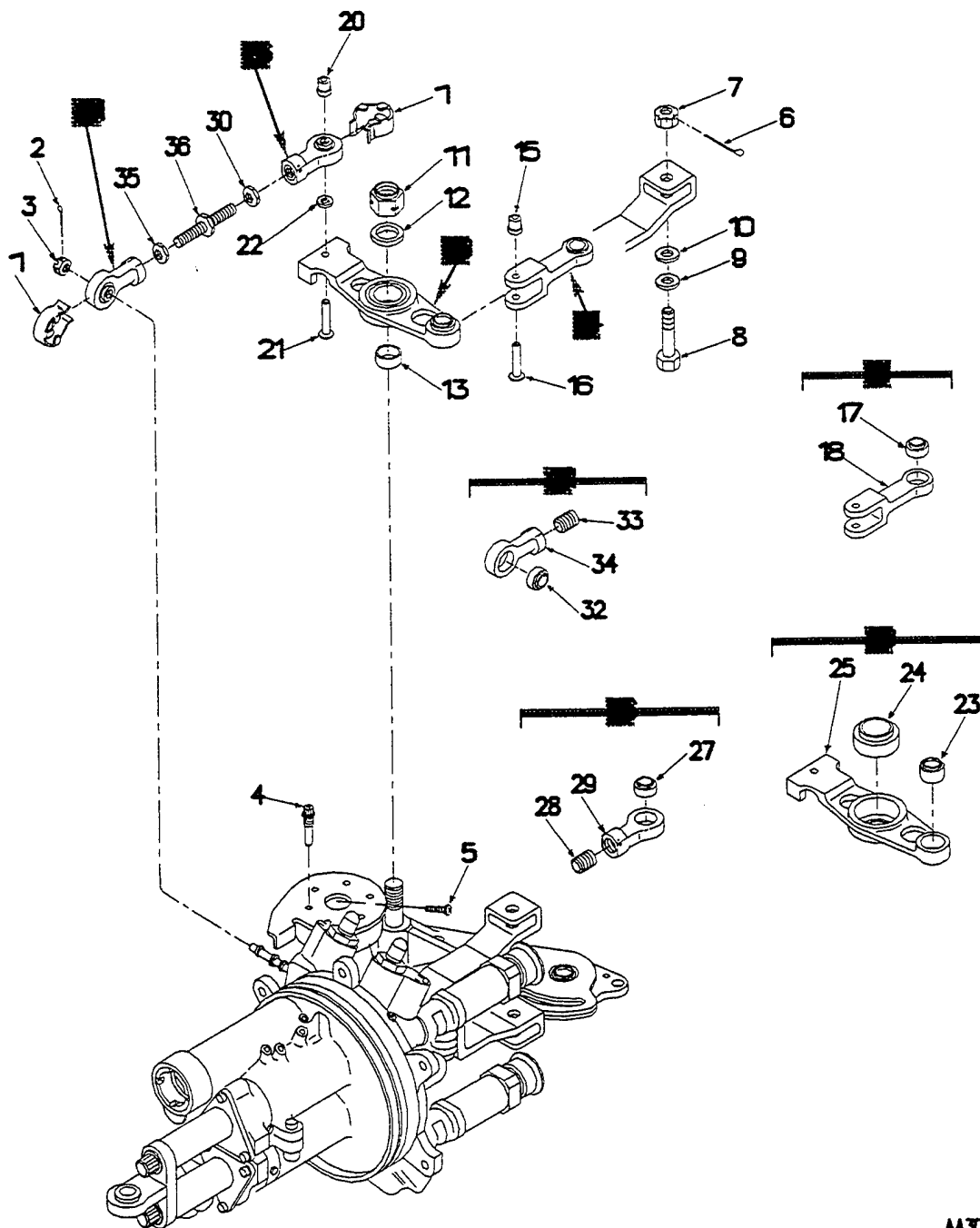
ALL DIMENSIONS ARE IN INCHES.

AA3079

### 11.4.1 Output CADLeaf

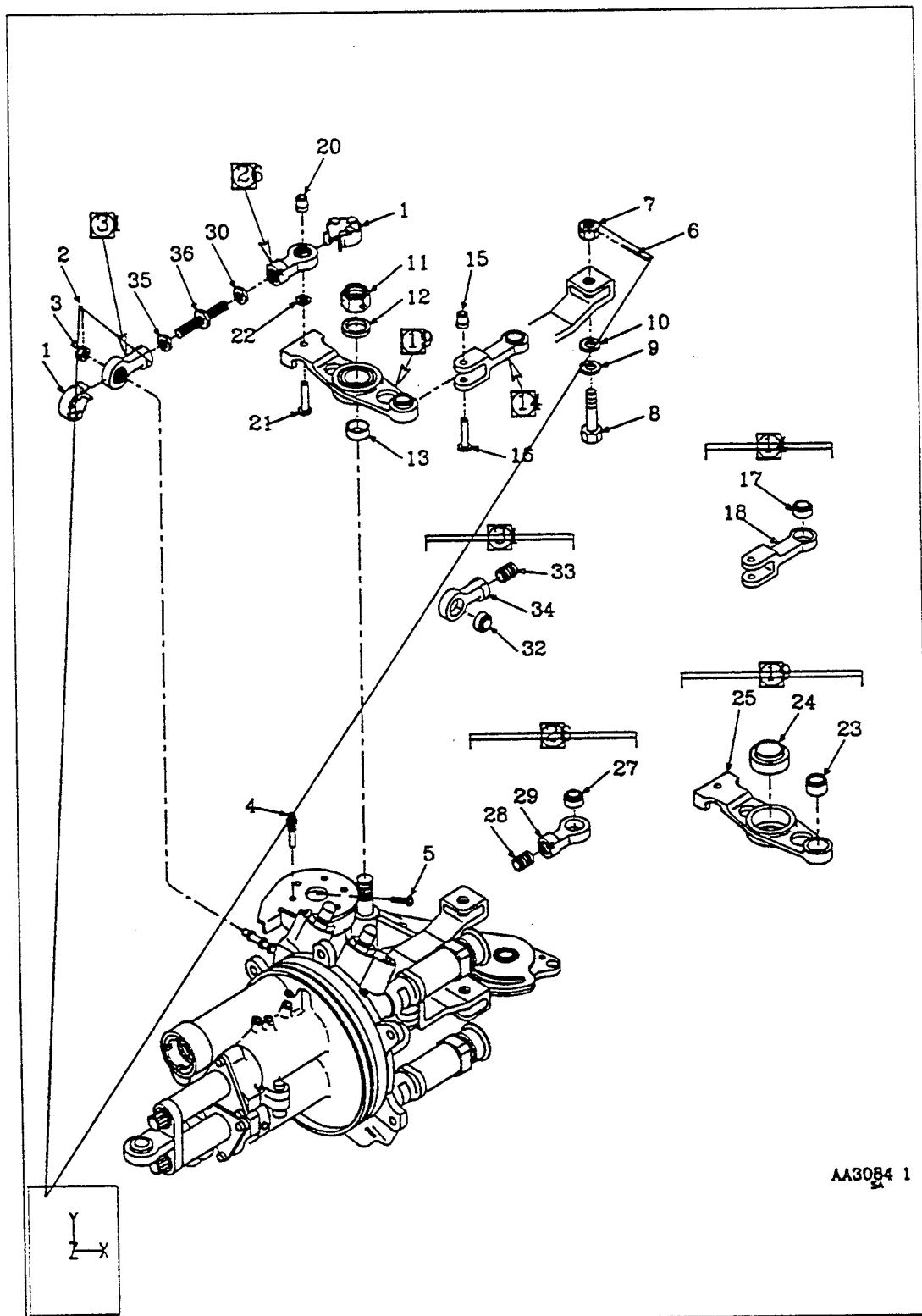


## 11.4.2 Output CALSView

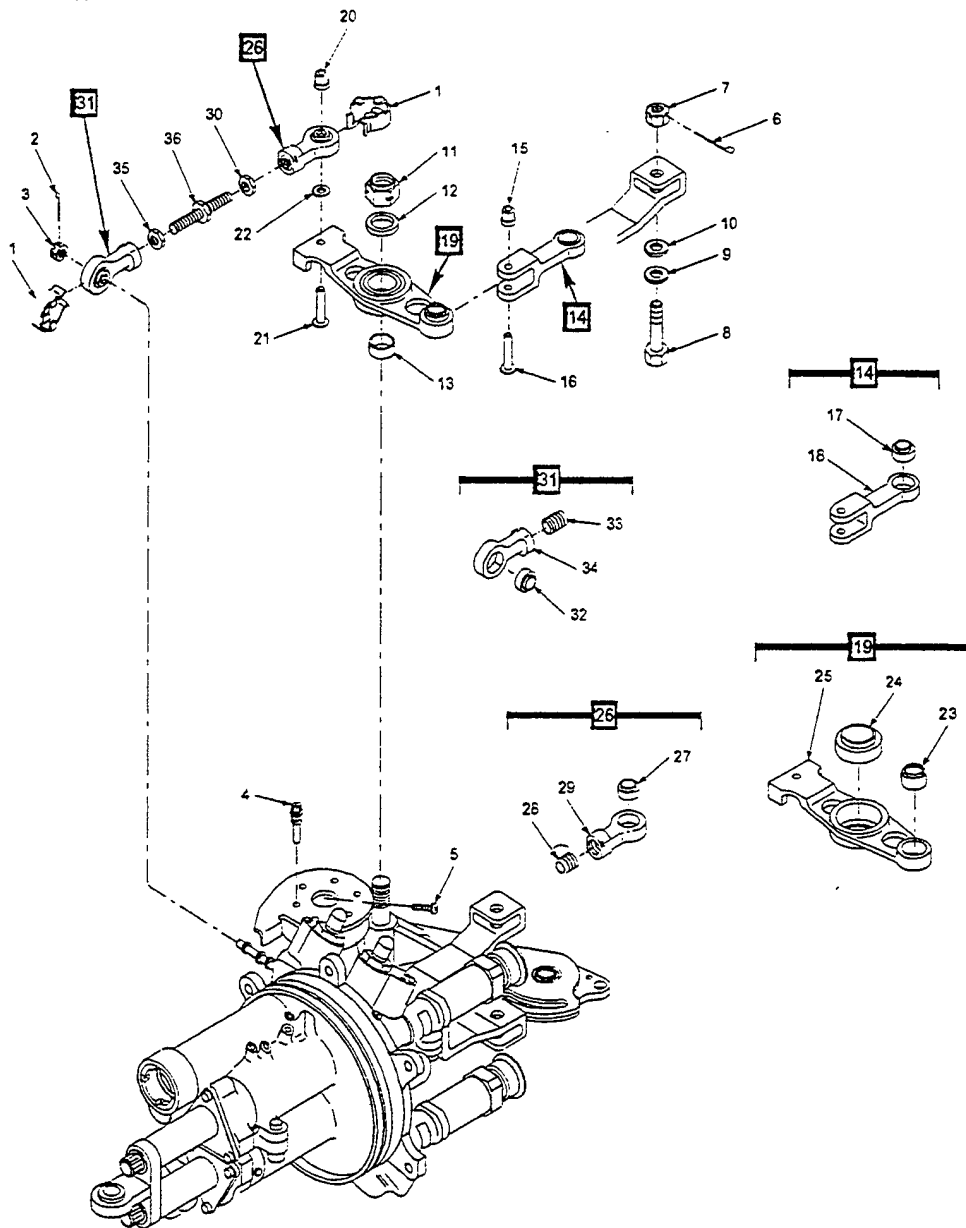


AA3084

### 11.4.3 Output Generic



## 11.4.4 Ouput Designer



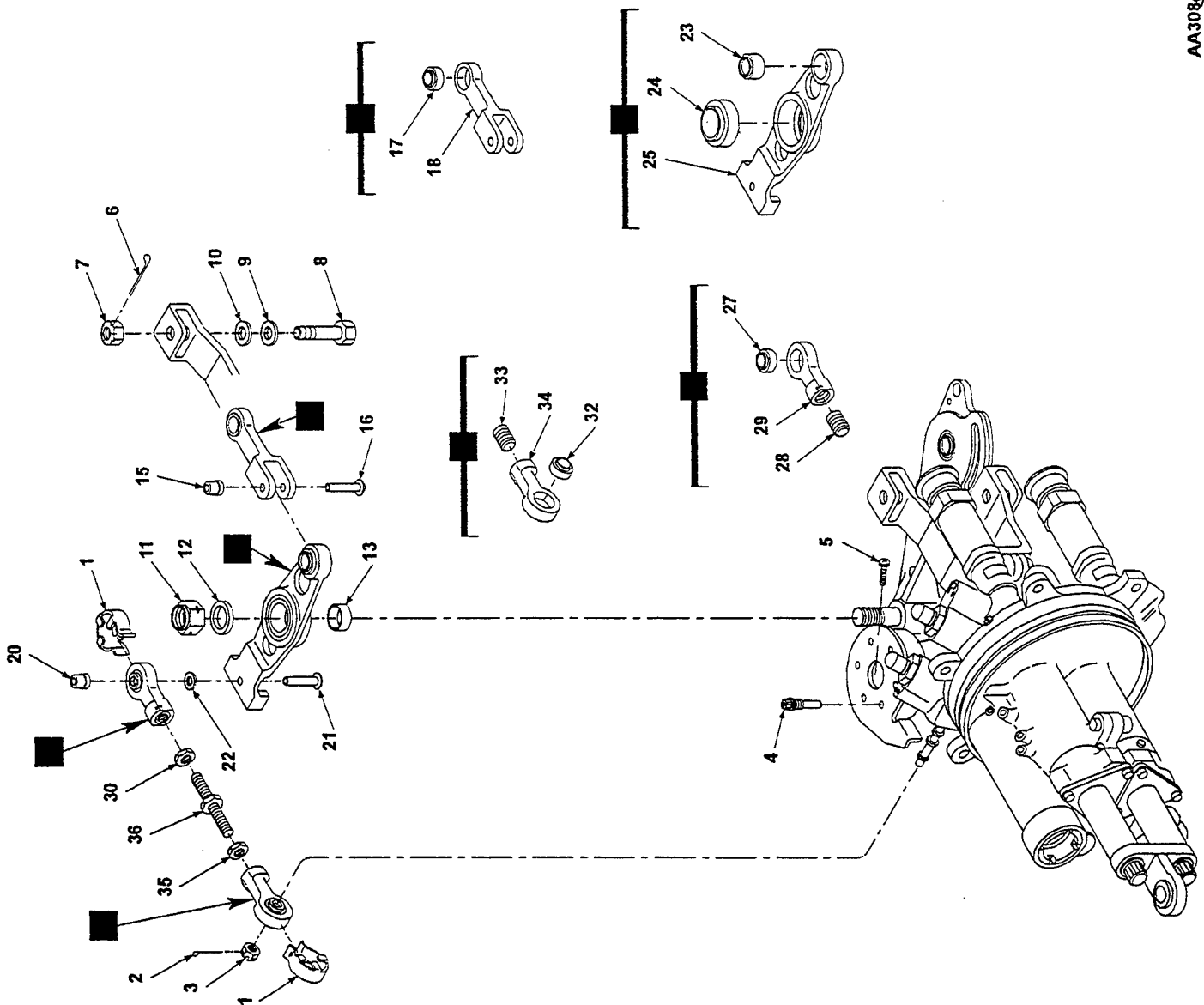
AA3064\_1  
24

Designer 4.0

C031



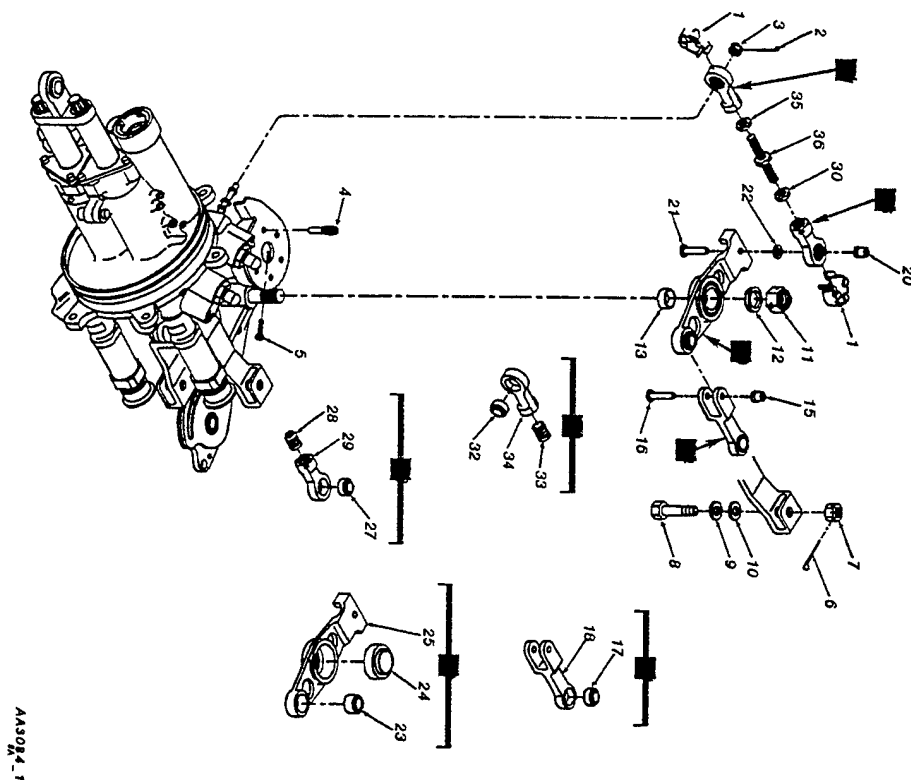
## 11.4.5 Output Freelance



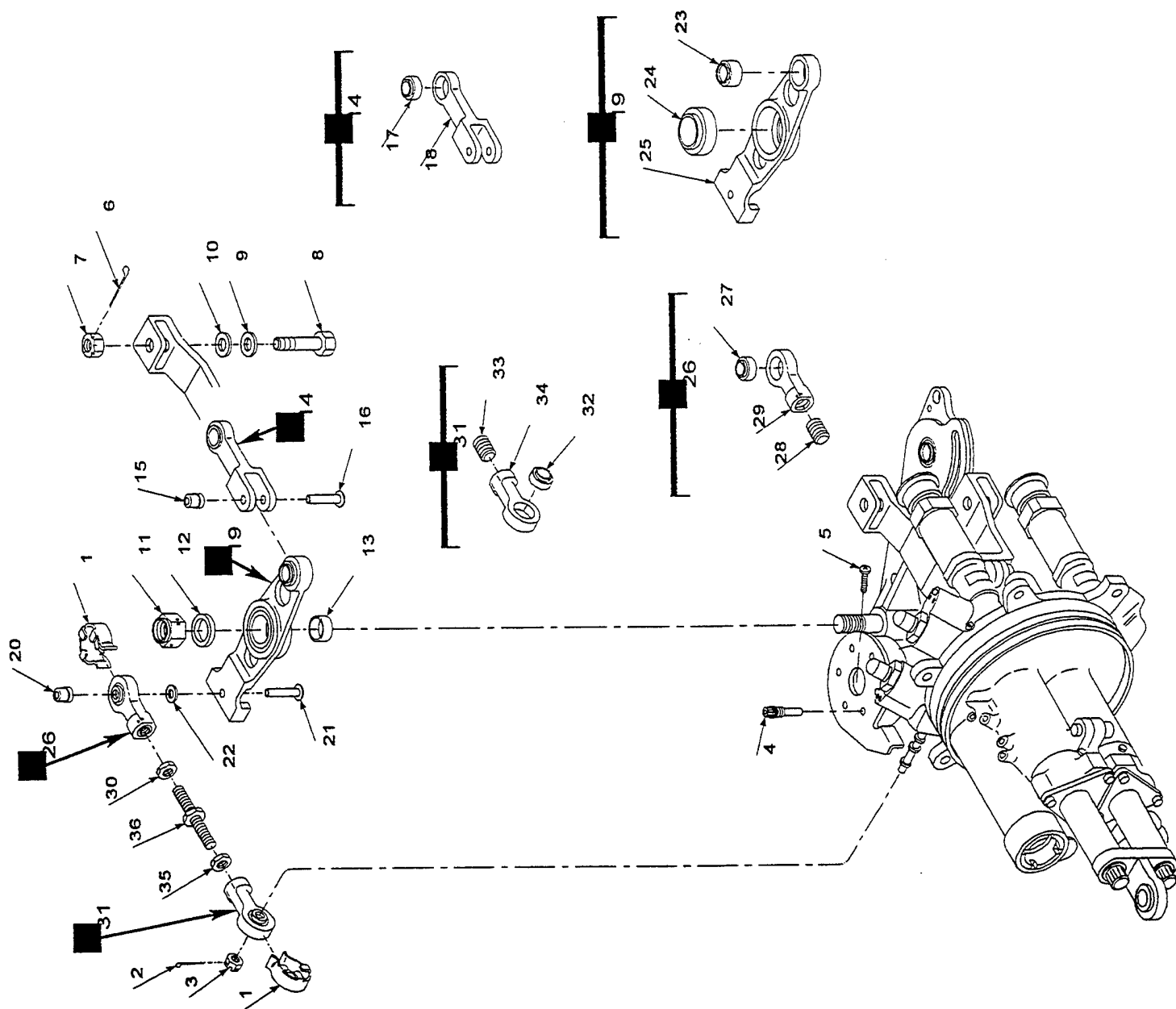
AA308A.1

## 11.4.6 Output Harvard Graphics

Harvard Graphics  
C031

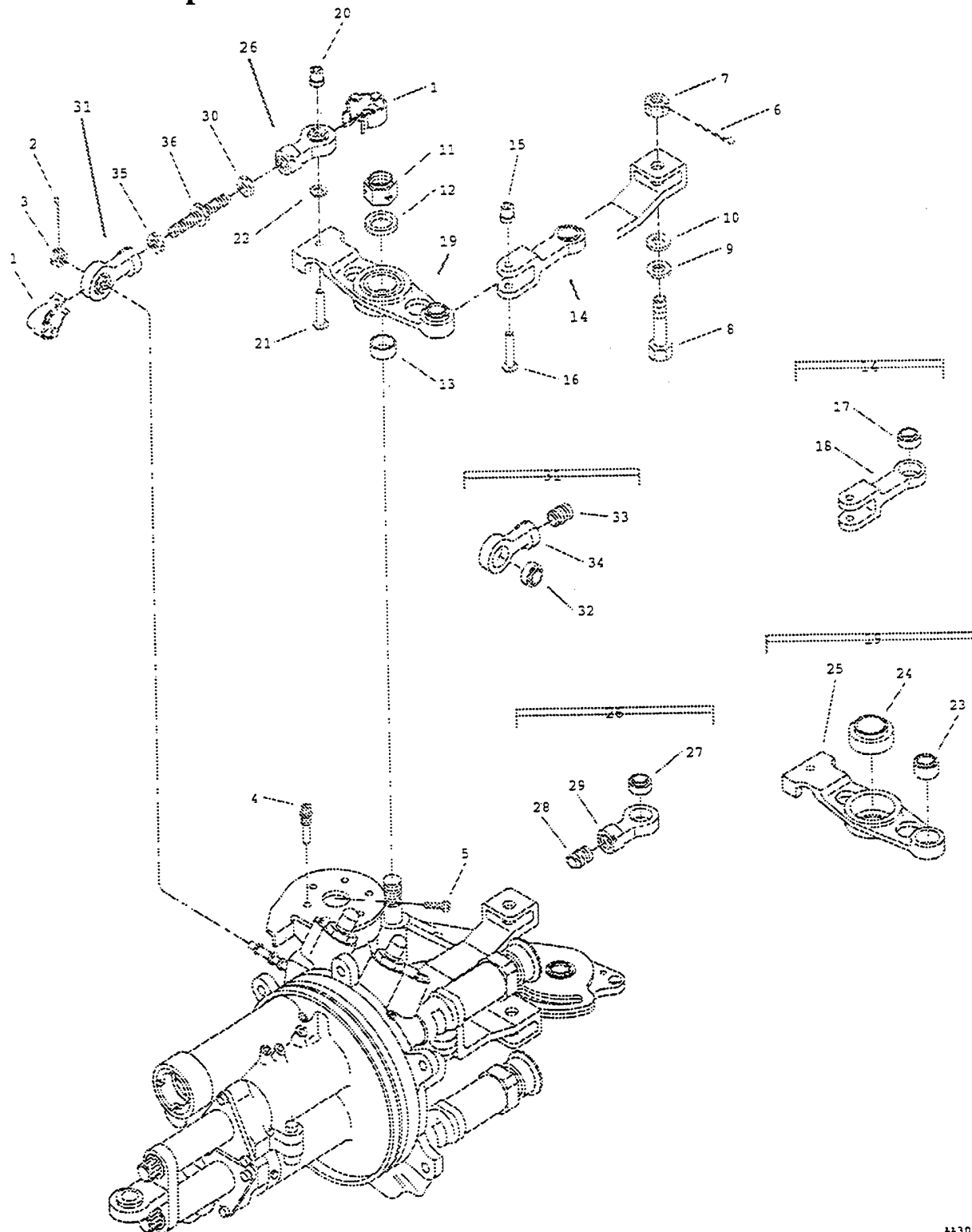


## 11.4.7 Output HiJaak for Windows



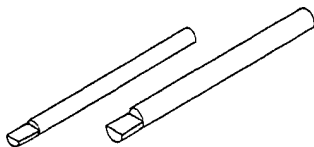
AA306

## 11.4.8 Output Island Draw 4.0

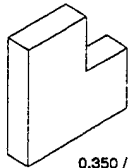


## 11.4.9 Output Ventura Publisher

SMALL DIA. GAGE PIN



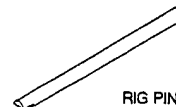
LARGE DIA. GAGE PIN



0.350 / 0.650 GAGE

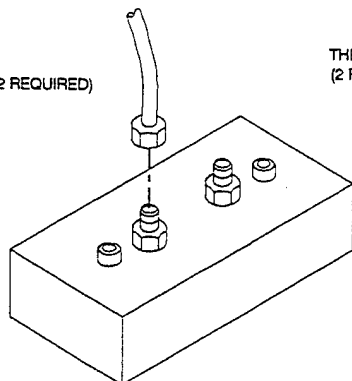


STOP BLOCK (2 REQUIRED)



RIG PIN

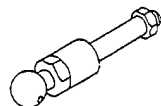
DRAIN TUBE (2 REQUIRED)



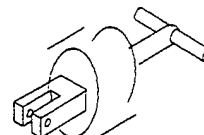
QUICK-DISCONNECT BLOCK  
(2 REQUIRED)



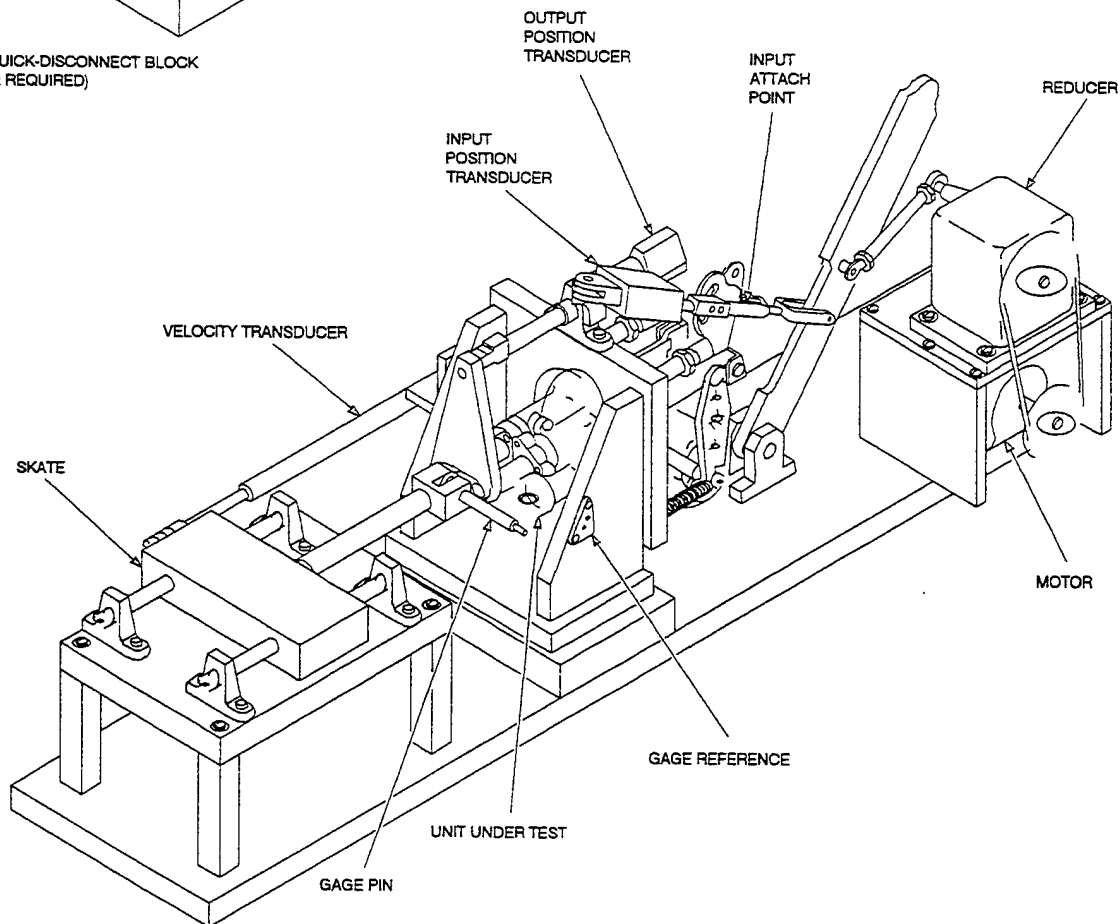
THERMO VALVE CAP  
(2 REQUIRED)



INPUT BALL ASSEMBLY



INPUT LOAD  
TRANSDUCER



TEST FIXTURE (2227000-F101)

AA3150